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AN INVESTIGATION OF THE COMPRESSIVE STRENGTH PROPERTIES OF STAINLESS STEEL SHEET-STRINGER COMBINATIONS

Air Service Information Circular, Volume VII, No. 697

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Historical test whose test data indicates that: 1. The strength properties of sheet stringer combinations are governed by the strength properties of the stringer, and only to a minor degree by the sheet to which the stringer is attached, and that the highest structural efficiency from the point of view of carrying compressive loads is attained for a given stiffener by reducing the sking thickness to a minimum. 2. For a sheet-stringer combination the total load carried is a linear function of stiffener units provided, and is independent of the stiffener pitch. 3. The effective width of sheet working with a stiffener at any stiffener stress, up to the stiffener failing stress for a given sheet thickenss is determinable by the mathematical expressions provided in the report.

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(AIRCRAFT BRANCH REPORT)

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AN INVESTIGATION OF THE COMPRESSIVE STRENGTH PROPERTIES OF STAINLESS STEEL SHEET-STRINGER COMBINATIONS

(Prepared by E. H. Schwartz and C. G. Brown, Matériel Division, Air Corps, Wright Field, Dayton, Ohio, Sept. 10, 1934)

SUMMARY

An examination of the test data indicates that—

1. The strength properties of sheet stringer combinations are governed principally by the strength properties of the stringer, and only to a minor degree by the sheet to which the stringer is attached, and that the highest structural efficiency from the point of view of carrying compressive loads is attained for a given stiffener by reducing the skin thickness to a minimum.

2. For a sheet-stringer combination the total load carried is a linear function of the stiffener units provided, and is independent of the stiffener pitch.

3. The effective width of sheet working with a stiffener at any stiffener stress, up to the stiffener failing stress for a given sheet thickness may be determined by the expression:

$$W=C\sqrt{\frac{E}{\sigma_s}}t,$$

the units being defined in the body of the report.

4. The coefficient C in the foregoing expression is a function, primarily, of sheet thickness. The data were insufficient to definitely indicate any dependence of C on stiffener failing stress, for a given sheet thickness.

5. Having once established a curve of stiffener σ_s versus L/ρ, the properties of any sheet-stiffener combination may be determined directly.

6. The properties of stainless steel columns follow a form of Euler-Johnson relationship, the position and shape of the curve for a particular section being a function of the cross section shape and thickness of that section and of the column fixity.

7. The properties of corrugated stainless steel sheets are governed by both slenderness ratio and R/t ratio, in such a manner that buckling values for a certain R/t ratio decrease with increasing L/ρ.

8. For a given stiffener shape and length its failing stress increases with thickness up to some limiting thickness after which it remains constant.

9. For a constant stiffener shape, thickness, and length, the load per stiffener in sheet-stiffener combinations increases parabolically with increase in sheet thickness.

10. For such data as were available the linear relationship between load carried and stiffener units, and independence from stiffener pitch applies as well to aluminum alloy plate stringer combinations.

11. The present specification for the strength of spot welds is not adequate to prevent failures of the type experienced during these tests. It is felt that it should be amended by a requirement to the effect that the weld strength of built-up sections be demonstrated by test to be sufficient to allow complete collapse, or crushing, of the section without weld failures.

HISTORY

The project was initiated in October 1931 and drawings and procurement data were completed by June 1932 at which time invitations for bids were issued.

The bids received at that time were so in excess of the funds available to carry out the project that the stiffener sections were changed from the original section which had no outstanding welding flanges at the back of the stiffener to the type of stiffener shown herein, in order to reduce the cost of the specimens to a point where procurement was possible with available funds.

New invitations were then issued and eventually a contract awarded to the Curtiss Aeroplane & Motor Co. for their fabrication.

The selection of stiffener cross section, gages, etc. was influenced by and based upon the data available at the time the project was initiated, namely 1931.

Certain sections presented herein, however, were decided upon at a later date to supply information of a specific nature, and are included herein to broaden somewhat the scope of the original project.

DATES AND PLACE OF TESTS

All tests were conducted between December 1933, and June 1934, as time and equipment were available. The majority of the tests were conducted at Wright Field, Dayton, Ohio, using the testing equipment of the Materials Branch. Tests on specimens requiring a load in excess of 100,000 lb./sq. in. to cause failure were tested at the Bureau of Standards, Washington, D. C.

OBJECT

The object of the project was to determine, insofar as possible, the effects of the many variables that enter into the determination of the compressive strength properties of the flat stainless steel sheet-stiffener combinations tested during the course of the investigation.

DESCRIPTION

Test specimens

The specimens were fabricated in accordance with Matériel Division drawings SK–18698, 18699, and 533064 from commercial 18–8 sheets, no Army specification on stainless steel being available at the time the speciments were made. The physical properties of the material, as determined by tests on specimens of representative thicknesses taken from the specimens, are tabulated in table I.

The sheet-stiffener combinations consisted of closed section stiffeners of the type shown in figures 1 and 2, electrically spot welded to sheets. The spot welding technique was determined by the practice of the contractor. The weld spacings were as follows:

Sheet thickness	Weld spacing
Inch	*Inch*
0.010–0.015	3/16
.020– .030	1/4
.050	3/8

The welding flanges were $\frac{3}{16}\pm\frac{1}{64}$ on thicknesses of 0.010 to 0.030, and $\frac{1}{4}\pm\frac{1}{64}$ on 0.050 sheets.

The allowable tolerance on the sheets were:

Sheet thickness	Tolerance
Inch	*Inch*
0.010–0.030	±.015
.031– .051	±.0025

The tolerance on the stiffener over-all dimensions was $\pm\frac{1}{64}$ inch and on spacing was $\pm\frac{1}{32}$ inch.

The allowable deviation from straightness was set at not to exceed $\frac{1}{32}$ inch per foot of specimen length. The over-all length of the specimens was held to $\pm\frac{1}{16}$ inch of that specified.

The ends of the specimens were ground flat and were liquid-cooled during grinding. A departure from parallel ends to the extent of 0.004 per inch width or depth of specimen or stiffener was allowed.

It proved practically impossible to secure perfectly flat ends on the specimens, and accordingly the sheet was allowed to depart 0.003 inch from flat, at a point midway between stiffeners, on sheets of 0.010 inch thickness, and 0.002 inch from flat at the midpoint on sheets of 0.050 inch thickness. Some of the first specimens received, that is, I series, were reground at the division to obtain flatter ends. The set-up used for regrinding is shown in figure 79.

A reasonable degree of flatness of the skin between stiffeners was required, and a satisfactory flatness was furnished in practically all specimens. A twist of the finished specimens of not to exceed 0.01 inch per inch specimen length was allowed. This twist was usually readily removable at the time of testing.

The test series were divided into several parts, as follows:

Parts A and B.—The specimen length was held constant, and the stiffener thickness, sheet thickness, and stiffener pitch, and number of stiffeners varied in order. The stiffener cross section dimensions were held constant. Section shown in figures 1 and 78.

Part C.—In this series length effect was studied by controlling lengths for certain stiffener and sheet combinations. The stiffener cross section was held constant, being the same as the A series stiffener section. Five lengths each were arranged.

Part EA.—In this series the stiffener width was held constant, and the stiffener depth varied for several combinations of sheet and stiffener thicknesses, and for three lengths each. See figures 2 and 78 for typical stiffener section.

Part EB.—In this case the stiffener depth was held constant and the width varied, other factors being controlled as in part EA. See figures 2 and 78 for typical stiffener section.

Part EC.—In this series, both width and depth were allowed to vary, the other variables being as in part EA. Typical stiffener section shown in figures 2 and 78.

Part F.—This series was essentially as in EA, except that the method of attaching the stiffeners to the sheet involved four rows of welds on the sheet instead of two and that additional stabilizing grooves, spaced ½ inch, were provided in the stiffener sides. A section is shown in figure 2.

Part G.—A series of stainless steel cylinders of varying stiffener spacings and thicknesses for varying sheet thicknesses, lengths, and cylinder diameters. Stiffener section constant as in part A. (Not tested at date of writing.)

Part H.—A series of flanged angle section were used for stiffeners in varying depths, lengths, skin and stiffener thicknesses, and stiffener spacing. (Note.—Specimens were not tested, due to their inefficient nature.)

Part I.—Here the specimens consisted of corrugations of ½ inch depth, with the pitch of the corrugations varying for certain thickness and lengths. Various flat sheets welded to the corrugations to simulate wing covering were also investigated. Typical section shown in figure 3.

Description of apparatus

In order to eliminate any undesirable effects due to lateral shifting of testing machine tests, the jigs shown in figures nos. 74, 75, and 76 were used. The jig consisted essentially of four 8- by 8- by 2-inch steel plates, having alternate plates rigidly connected by accurately ground shafts sliding through bronze bearings in adjacent blocks in such a manner that a compressive load is applied between the inner blocks when a tensile load is applied to the outer blocks. Due to the close, sliding fit between the shafts and the blocks lateral movement of one end of a test specimen with respect to the other end was eliminated.

Shafts of sufficient length to accommodate the longest specimens were provided. A close-up view of a long specimen in the jig is shown in figure no. 76.

A 2-inch square bar, ground flat, was secured to the upper working block of the jig, and a 3-inch square bar, likewise ground flat, centered on a spherical seating block centered on the lower working block.

Strips of hardened aluminum alloy 2 inches in width, and ⅛ inch thick were placed between the ends of the specimens and the ground steel surfaces, in order to prevent damage and to assist in attaining a more uniform load distribution. Figure no. 77 shows typical impressions of specimens left on the strips after testing.

With the jig installed in a testing machine, the specimens were then loaded to failure, operating the machine as if for a tensile test.

A 40,000-pound capacity Amsler and a 100,000-pound Olsen machine were used at Wright Field. A 600,000-pound Olsen machine at the Bureau of Standards was used to load specimens exceeding the capacity of the other two machines.

It was noted during the tests that considerable energy was stored in the guide rods of the testing jig. When a specimen began to fail, the stored energy was often sufficient to cause the failure to proceed to completion in an explosive manner, which was somewhat undesirable for the study of the process of failure.

Areas were determined from the actual weight and length of the individual specimens, using as the unit weight of stainless steel 0.286 lb./cu. in., which was an average value determined by weighing several sheets of known dimensions.

DISCUSSION

A series

The variables that may be investigated in the A series of specimens are, for a constant stiffener shape and length, as follows:

1. Stiffener thickness (0.010 to 0.050) normal thickness.
2. Sheet thickness (0.010 to 0.050) normal thickness.
3. Stiffener spacing (1⅛ to 15 inches).
4. Number of stiffeners (2 to 9).

The actual thicknesses were close to 0.009, 0.014, 0.018, 0.019, 0.029, and 0.049. During the planning stages of the project it was expected that a useful variable might be found in percent reinforcement defined by the expression:

$$R=\frac{\text{Stiffener area}}{\text{Stiffener area}+\text{sheet area}}$$

where the stiffener area is that of one stiffener, and the sheet area is that included between the centers of the adjacent stiffeners.

The variable R, in the case of a specimen having but two stiffeners, obviously gives an erroneous indication of the existing conditions, and is of questionable value when applied to two stiffener test specimens. Accordingly, little faith has been placed on values indicated by many two-stiffener specimens.

Average failing stresses have been plotted against R in figures 18 to 22, inclusive. If the range of R is investigated, it will be noted that the average failing stress varies linearly with R, the position and slope of the resulting line being determined, for a given stiffener, by the skin thickness. The effect of an increase in stiffener thickness or sheet thickness for a given R is to increase the average failing stress.

In reference 8, it is concluded that the optimum conditions for proportioning a stiffened sheet is that in which the stiffener retains its alinement until the sheet is carrying the maximum load of which it is capable.

This conclusion is apt to be misleading, for it emphasizes the sheet as the more important element of the sheet-stringer combination. It unquestionably applies to the case of a weak stiffener attached to a thick sheet, which is an inefficient combination in comparison to the reverse case.

In cases of sheet-stiffener combinations of normal proportions, it is quite possible for stiffeners of closed section to remain intact and to continue to carry high stresses long after the sheet has reached and pressed its maximum load. Even in cases where a more nearly simultaneous failure of the elements occurs, the portion of the total load carried by the sheet is small in contrast to that carried by the stiffeners. As stiffener thickness increases, the average failing stress goes up, and the percentage of load carried by the sheet goes down. In general, it may be noted that as the load carried by the sheet increases, the average failing stress lowers.

Accordingly, it would appear that to obtain the highest average failing stresses, the stiffener should be the element that carries the greatest emphasis, and that the sheet should be governed by conditions other than its simple load-carrying ability.

It should be noted that the R curves of figures 18 to 22, inclusive, are for a *particular* stiffener section thickness and length and cannot be applied directly to any other section. Any variation in allowable stress as determined from an R curve must be due only to a change in stiffener spacing and not to a change in stiffener area. The reason being that the stiffener is by far the governing variable of the combination.

This may be readily noted by examination of figures 13 to 17, inclusive, and 8 to 12, inclusive, where in one case average failing stresses have been plotted against stiffener pitch for a constant stiffener and a varying sheet thickness, and next for a constant sheet and varying stiffener thickness. In the first instance little effect of the sheet is noted. In the second case, however, an enormous variance in average stress due to a change in stiffener thickness is noted.

When plotting the failing loads of the specimens against the number of stiffeners, as in figures 5 to 7, inclusive, a remarkably consistent variation is noted in that every combination of sheet and stiffener the total load carried is directly proportional to the number of stiffeners, regardless of their spacing. This variation is consistent with the findings of reference 1 where it was noted that the strength of flat plates under edge compression was independent of their width.

This immediately suggests that each stiffener and an unknown width of sheet form a unit working at the failing stress of the stiffener. It also explains the drop-

ping off of average failing stress with increased stiffener spacing indicated in figures 8 to 17, inclusive.

Due to the nature of the stiffeners, the assumption that the stiffener failing stress would remain constant with a change in sheet thickness appears to be justified. On the basis of that assumption, which will be discussed more fully later, an attempt will be made to determine the amount of sheet working with each stiffener at a particular stiffener failing stress.

Let

P=load, pounds, carried by the test specimen at failure, for N stiffeners.

σ_s=failing stress of stiffener and whatever width of sheet may be working with it at failure.

A_{sh}=effective area of sheet per stiffener.

The following relationship may be established in terms of the test specimen dimensions:

$$P=[NA_{st}+(N-1)A_{sh}+0.875t]\sigma_s$$

Solving for A_{sh}

$$A_{sh}=\frac{P}{(N-1)\sigma_s}-\left(\frac{N}{N-1}\right)A_{st}-\frac{0.875t}{(N-1)}$$

The term $0.875t$ is included with the working area on the presumption, justified later, that the working width will be equal to or greater than the overall width of the stiffeners, and increases to $1.00t$ for 0.050 stiffeners.

In the above expression for A_{sh} the only unknown is σ_s. The definition of σ_s must be expanded to indicate a failing stress of a closed section where the closing sheet is of zero thickness, but still acts to supply the stabilizing forces necessary to prevent the stiffener from behaving as an open section.

In order to determine σ_s it was assumed that the effective width of sheet working with the stiffener was the overall width of the stiffener, ⅞ inch in the case of 0.029 stiffeners, and 1 inch in the case of 0.049 stiffeners. Assumed values of stress were then computed using a stiffener area including only the sheet between the stiffener overall dimensions, the number of stiffeners on a test specimen, and the specimen failing load.

These assumed stresses were then plotted against skin thickness and the resulting curves extrapolated to zero skin thickness to give a proper value of σ_s (curves not included).

In the calculations of σ_s an average stiffener area has been used, together with values of P taken from P versus N curves. The calculations of σ_s and A_{sh} are arranged in tabular form in tables II and III.

Figure 25 shows the variation of σ_s with stiffener thickness, and indicates a rapid increase of failing stress up to a thickness of about 0.030, where the curve abruptly flattens out. A similar behavior will be noted in figure 24 where average failing stresses for the B series stiffeners have been plotted against stiffener thickness for several sheet thicknesses.

In reference 4 will be found the expression—

$$W'=\frac{C}{2}\sqrt{\frac{E}{\sigma_s}}t$$

where

W'=one-half the width of sheet working with a stiffener

E=modulus of elasticity of material

σ_s=stiffener stress

t=sheet thickness

C=a constant

$W=2W'$

Having computed the effective width of sheet working with a stiffener at a stress σ_s, it requires but two steps to compute W/t and C as has been done in table III, using the expression—

$$C=\frac{\frac{W}{t}}{\sqrt{\frac{E}{\sigma_s}}}$$

The coefficient C has been plotted in figure 26 against sheet thickness for σ_s from 71,500 lb./sq.in. to 120,000 lb./sq.in. Various stiffener thicknesses and lengths were used to obtain the σ_s variation.

The curves 1 and 2 of figure 26 indicate, respectively, the lower and upper limits of C as indicated by the plotted points. Curve 3 represents an estimated mean value of C and is the value recommended for use.

It will be noted from the computation of C that thickness enters as t^2. Since it was not possible to maintain a constant t, as was noted under the description of the specimens, variations in t are felt responsible for a considerable part of the variation of figure 26. The greatest effect due to variation of t^2 would be noted where the thickness is small, and it is in this range where the results are most scattered.

The results are also influenced by the proper determination of σ_s. Since σ_s was necessarily determined by extrapolation, it is subject to the errors of that process.

Considering the sources of error involved, it is somewhat surprising that the computed values of C are not even more scattered than the results indicate.

C series

The purpose of this series was to investigate the influence of length for nominal sheet and stringer thicknesses of 0.010, 0.020, and 0.030, with spacings corresponding to certain of those used in the A series of specimens.

In figures 29 to 32, inclusive, the specimen failing load has been plotted against length for several sheet and stiffener thicknesses, for lengths up to 18 inches. The shape of the resulting curves is influenced considerably by the stiffener, and somewhat by the sheet.

In figures 27 and 28 a value of load per stiffener, P/N, obtained by dividing the total load carried by the number of stiffeners on the specimen, has been plotted. For the 0.019 and 0.029 stiffeners the resulting curves indicate that the linear relationship between total load and number of stiffeners, established for the A series, applies for any length within the range of lengths tested.

Due to the erratic results of the tests on the 0.009 stiffeners, the linear relationship is not experimentally so evident. The shape of the curves of P/N versus length is not completely consistent in shape, the curves for the 0.029 stiffener being least so.

The curves of σ_s versus stiffener thickness show the same trend toward a constant σ_s after a certain t is reached that was noted from the A and B series tests.

In figures 33 and 34, where average failing stresses have been plotted against length, an Euler-Johnson relationship is indicated.

Fixity effects

In order to obtain some idea of the fixity coefficient C realized during the flat end tests, a series of individual 0.029 stiffeners was salvaged from 0.019 sheets after the A and C series tests had been completed. The sheet was sheared off at the edges of the stiffener welding flanges.

The individual stiffeners were then tested as both knife-edge and flat-end columns. The results are presented in table IV and figure 36. On the latter figure Euler curves for $C=1$ and $C=3$, based on $E=26{,}000{,}000$, which is a fair average value, were plotted.

For the knife-edge tests the data obtained show a satisfactory tangent to the Euler curve at $L/\rho=90$. Insufficient test data were available, however, to follow the flat end curve down to a well established junction with the Euler curve. The curve drawn, therefore, is not final, but it does not appear to be unreasonable and indicates that the assumption of $C=3$ for flat end tests is not greatly in error.

The use of previously tested stiffeners may be open to question. Every precaution, however, was used in selecting only undamaged stiffeners.

The curves indicate an Euler-Johnson or similar relationship between failing stress and slenderness ratio. The position of the curve for any other stiffener thickness below 0.029 would change, being lowered, and considerably flattened, judging by the tests on other stiffener sections.

In applying the results of tests on flat ends to a definite structure such as a box section wing, it does not appear unreasonable to apply a correction to flat end test results to bring them to whatever value of fixity is assumed, or determined to exist in the actual structure. If figure 36 were a design column curve, for instance, and it was determined experimentally that a coefficient of 2 was all that could be allowed, a curve midway between those drawn would become the design curve for $C=2$. The procedure would be similar for $C=1$, etc. In this respect, published data justifying the use of $C=2$ or more are few for the usual box wing construction where the sheer webs are widely separated. Values of 1.5 or below are more representative. The coefficient increases somewhat when multiple webs exist, reaching values sometimes in excess of 2. Lacking experimental verification, values in excess of 1.5 appear unconservative. The application of flat end tests directly without a proper fixity allowance is also unconservative.

Since the ratio of stress for $C=3$ to the stress for $C=1$ varies from one at $L/\rho=0$ to 3 in the Euler range, the seriousness of flat-end allowables is less in the short column range where the majority of compression members are likely to fall.

Effective radius of gyration

The establishment of the sheet-stiffener units, or the linear relationship between total load and number of stiffeners, and the column curves from the single stiffener tests suggests an investigation to determine the possibility of a relationship between the two.

Accordingly, from table III a 0.029 stiffener series of data was selected for examination, as the values of C computed for that data most nearly agreed with the curve of C finally drawn on figure 26. From the data, the width of sheet working with the stiffener was determined and the radius of gyration of the unit of sheet and stiffener was computed, using the moment of inertia of the unit about an axis through the unit center of gravity and parallel to the sheet.

The computations are tabulated in table VI. It will be noted that although the width of sheet working with the stiffener may vary as the sheet thickness varies, the radius of gyration of the unit remains nearly constant. The computed values of slenderness ratio ranged from 41.5 and 46 for a 9¼-inch test specimen for which the failing stress σ_s had previously been established, as compared to 46 for a 9¼-inch open section stiffener.

Referring to figure 36 it will be noted that for flat-end tests, a stress of 115,000 lb./sq.in. is indicated at a slenderness ratio of 43, which value is neatly bracketed by the foregoing values. Thus it is indicated that the column properties of the sheet stiffener units may be determined from a column curve for the individual stiffeners.

The above comparison may be a bit confusing if it is recalled that σ_s is based on a stiffener closed by a sheet of zero thickness whereas the plotted curves are for a 0.019 closing sheet. The stress σ_s, however, is probably very nearly constant for varying closing strips and was previously assumed so. The curves used in the establishment of σ_s, too, were usually nearly flat below 0.020-inch thickness of closing strip. While curves of P versus L or P/A versus L would show a separation due to closing sheet thickness for the individual stiffener tests, a curve of P/A versus L/ρ would probably show little or no influence of closing strip, except possibly for short lengths and the curve for 0.029 stiffeners with 0.019 closing strip may be considered a representative column above.

The nature of the σ_s curves of figure 25 and the expression for effective width of sheet indicate that the effective width coefficient C should be applicable to other lengths than the 9¼-inch length of the specimens that determined it.

Constant σ_s

The assumption of a constant stiffener failing stress for a given stiffener in the presence of varying sheet may be challenged on the basis of the different types of failure that occurred as the sheet thickness varied.

If anything, the assumption is conservative for practical thicknesses. It will be noted from the curves of total load versus N, that for a given N the load carried varies approximately parabolically with skin thickness. If the stiffener failing stress is constant the increase in load carried must be due to an increase in the area of sheet working with the stiffener. Conversely, if the area of sheet working with the stiffener is constant, the failing stress of the stiffener must increase enormously to account for the rapid rise of load with skin thickness. Due to the nature of the stiffeners, and the

susceptibility to local or elastic failures, it is not felt that the latter course is likely to be followed, and that the former is the more likely. It will be granted that there is perhaps a path some where between the extremes and that the stiffener failing stress may increase slightly with increased skin thickness up to the point where failures are governed by the outstanding welding flanges. Since the intermediate path cannot be ascertained, it is felt desirable to proceed with the assumption of constant σ_s.

It is likely that in the case of stiffeners rolled or drawn from a single strip, and having no outstanding welding flanges, the greatest variation of σ_s with sheet thickness would occur.

The parabolic relationship between load and skin thickness for a constant stiffener thickness suggests that extrapolating the parabola down to zero skin thickness would be a simpler procedure for determining σ_s in the presence of a sheet of zero thickness than the procedure used previously.

Material

Failing stresses were undoubtedly influenced to some extent by variations in the physical properties of the material, inasmuch as from table I it will be noted that moduli of elasticity varied considerably as did the proportional limit of the material. The extent to which these variables influenced the results is not felt to be large, but it is at the same time indeterminate, as it was not practicable to determine the characteristics of each and every specimen. There could be nearly as great a variation in the properties of the individual elements of the specimens as there is indicated for the material in general, as the stiffeners and sheet could not come from the same stock.

Application to other stiffeners

The results thus far presented have been based on flat specimens employing closed section stiffeners of a particular type.

Neither specimens nor data are available to determine the validity of the application of the results to open section stiffeners attached to the sheet by a single line of welds instead of the two lines used in the test specimens. The effect of curvature was not investigated due to lack of time and facilities for the investigation of the cylindrical specimens.

It appears quite likely that the effective width would decrease somewhat for stiffeners attached by a single line of welds.

Comparison with aluminum alloy sheet-stringer tests

As a matter of curiosity the results of an extensive series of tests on flat ended aluminum alloy plate stringer combinations were examined to ascertain whether or not the linear relationship between load and number of stiffeners applied to the aluminum-alloy specimens. Due to the confidential nature of the data, it cannot be presented herein. Only a few of the results permitted plotting of load against number of stiffeners. The results, however, were such as to verify the linear relationship rather conclusively for the particular stiffener section, sheet thickness, length, and rivet pitch used. All of the latter variables will undoubtedly effect the total load carried, or the average failing stress, but for particular combinations, it appears that the behavior determined for the stainless-steel specimens applies also to the aluminum-alloy specimens.

The same data afforded a rough comparison of the merits of 24ST aluminum alloy and stainless steel plate stringer combinations. The comparison was made on the basis of the average stress developed in sections of the same pitch, same slenderness ratio of the stiffeners *alone*, and equal thickness of sheet and stringer, 0.018 for the steel and 0.050 for the aluminum alloy, the ratio of the latter values being closest to the ratios of unit weights of the materials.

Reduced to an L/ρ of 46, corresponding to the 9¼-inch A series specimens, and a 6-inch stiffener spacing, it could be expected that average stresses of 67,500 lb./sq. in. and 26,870 lb./sq. in. could be developed for the two materials.

The ratio of these two is 2.51 which falls short of the 2.86 necessary for equal efficiency by about 14 percent, the aluminum alloy making the better showing. The above comparison, however, is not absolute, as the stiffeners were of radically different cross section. The aluminum alloy stiffener sections were of one piece with no outstanding flanges except at the attachment to the sheet. The rivet pitch was ¾ inch. Should the latter figure be increased, a more favorable comparison would be likely to result. Likewise, if the stainless-steel stiffeners were of a cross section similar to the aluminum alloy in freedom from outstanding flanges, a more favorable comparison would be likely.

In general, the stainless-steel combinations do not appear to have any hopeless or unsurmountable disadvantages as compared to aluminum alloy on the basis of structural strength.

Application to box sections

A question will doubtless arise as to whether the design of a box beam for instance should be based on an average stress basis, or on the basis of the σ_s stress developed on the most stressed stiffener, and the effective width of sheet working with it.

In order to investigate this point in a simple manner the section shown in figure 4 will be analyzed on the two bases.

Computing the apparent moment of inertia of the section, assuming all sheet effective in compression:

$$\frac{I_{oo}}{2}=0.010\times25.87\times7.5^2+6\times0.0855\times(7.5-0.333)^2$$

$$I_{oo}=82 \text{ in.}^4$$

The failing stress of the 0.030 stiffener will be 115,000 lb./sq. in. $=\sigma_s$.

A mean value of E of 26,000,000 lb./sq. in. will be used.

$$W=C\sqrt{\frac{E}{\sigma_s}}\,t$$

for $t=0.010$ $C=10$, from figure 26

$$W=10\sqrt{\frac{26\times10^6}{1.15\times10^5}}\times0.010$$

$$=1.505 \text{ in.}$$

$$I_{oo}=(0.010\times 5\times 1.505+0.875)7.5^2+26.4+41$$
$$=4.74+26.4+41=72.14 \text{ in.}^4$$

Computing the new C. G. location

$$d=\frac{+0.2587\times 7.5-0.010\times 8.40\times 7.5}{0.2587+12\times 0.0855+0.0840}$$
$$=\frac{7.5\ (0.2587-0.0840)}{1.3707}=0.955 \text{ in.}$$

The effective moment of inertia about an axis through the new C. G. is

$$I_{xx}=I_{oo}-Ah^2$$
$$=72.14-1.3707\ (0.955)^2$$
$$=70.89 \text{ in.}^4$$

On the basis of average P/A the 0.030–0.010–5-inch pitch combination could be expected to develop for $C=3$ conditions 86,500 lb./sq. in.

The 0.030 stiffener on the individual stringer basis could be expected to carry 115,000 lb./sq. in.

Let us now investigate the moments that could be developed for the two cases:

Section modulus

$$\frac{Y_1}{I_1}=\frac{7.5}{82}=0.0915 \qquad \frac{Y_2}{I_2}=\frac{8.455}{70.89}=0.119$$

$$M=\frac{S}{\frac{Y}{I}}=\frac{86,500}{0.0915} \qquad =\frac{115,000}{0.119}$$

$$M_1=945,000 \qquad M_2=966,000$$

to cause failing stress.

From the foregoing simple example the difference in moments developed for the trial section on the two bases are so small (2 percent) that it may be concluded that either method would lead to the same result.

The effective EI of the beam, however, would be most nearly represented by the lower of the two EI's for purposes of calculating deflections.

The assumption that the modulus of rupture at failure, in bending, could be computed from the expression $\frac{My}{I}$, which is an almost universal procedure, is verified by test. To obtain consistency with compression machine results on small specimens, however, due account must be taken of length and end fixity.

Variation of stiffener cross section

The EA, EB, and EC series tests were for the purpose of investigating effects, due to varying the stiffener dimensions.

It was originally intended that as the stiffener dimensions varied the length would also be varied to maintain a constant slenderness ratio based on the properties of the stiffener alone, that being the only possible variable that was contemplated at the time. The slenderness ratios desired were 25, 50, and 75. In the process of adding welding flanges to the sections finally used, exact control of the length was lost with the result that the slenderness ratios as computed for the final sections and the lengths furnished were of the order of 23.2–24.8, 46.4–49.6, and 69.5–74.4 for the series.

EA series

This series of tests was intended to supplement the A series tests by determining the influence of variations of the stiffener dimensions. The specimens were originally chosen to have a constant slenderness ratio, based on stiffeners alone. Accordingly, as the stiffener depth increased, the specimen length increased.

It has been shown in the preceding discussion that the governing slenderness ratio is not that involving the ρ of the stiffener alone, but is that determined by the sheet that is working with a stiffener. Accordingly, the original selection of constant stiffener L/ρ was not entirely satisfactory for the purpose intended.

For the 0.009 stiffener EA specimens a decrease in average failing stress is noted as the stiffener depth increases. This may logically be charged to decreasing stability of the stiffeners as the depth increases. The influence of slenderness ratio and sheet thickness are not pronounced for these thicknesses.

The 0.029 stiffener EA specimens show a much higher average failing stress than the 0.009 specimens, an appreciable influence due to slenderness ratio, but little influence due to variation of the sheet thickness. The behavior of the 0.049 stiffener EA specimens was similar to that of the 0.029 with a generally slightly higher average stress developed. In these tests, again it was evident that the stiffener is primarily responsible for the strength properties of the specimens.

The 0.029 stiffener EA specimens indicate a tendency toward a maximum average stress for a stiffener of ¾-inch depth, whereas the 0.049 stiffeners indicate a possibility of a maximum average stress for stiffeners of about ¾- to 1-inch depth for a ½-inch width.

The maximum stresses appear, for a given stiffener, to decrease somewhat as the sheet thickness increases. With all thicknesses of stiffeners, it was noted during tests of the EA specimens that at depths of 1 inch or more the predominating type of stiffener failure was by lateral buckling of the stiffener as a whole rather than a collapse of its component parts.

EB series

The 0.009 stiffener EB specimens show little variation of average failing stress for any of the variables entering. For the 0.029 stiffener specimens there is apparent a decrease in average failing stress with increasing stiffener widths, the decrease, however, is greatest for the 0.009 skin and practically disappears for the 0.049 skin. Length appears to have an appreciable effect.

For the 0.049 stiffeners the same behavior was noted as for the 0.029 stiffeners, with the length effect increasingly apparent.

EC series

It would appear from an examination of the EC series of data that the effect of increasing both the stiffener width and depth might be expressed as the summation of the effects of increasing first the depth and secondly the width.

The data indicate that the slope of the curves of the EC data for 0.009 stiffeners are approximately the sums of the slopes of corresponding curves of the EA

and EB data. For the higher stiffener thicknesses the average failing stresses correspond closely with those of the EA series, and the influences of the independent variables appear the same.

Open section stiffener tests

The results of flat and column tests on stiffeners typical of the A, B, and C series stiffeners are shown in figure 69.

The open section tests indicate an appreciable increase in failing stress with increase in thickness and do not exhibit the tendency of constant failing P/A for thicknesses in excess of 0.029 determined from the closed section specimen tests.

The failures for the longer lengths were predominantly due to twisting. The results do not appear at all useful in predicting the strength properties of plate-stringer combinations and are presented only as data on particular open sections.

Formation of wrinkles

It was noted during the tests that on the lighter skins the formation of wrinkles started almost at no load, and was influenced by the width or spacing of weld lines. The wrinkle pattern was generally such that pitch of the wrinkles was equal to the distance between weld lines. In other words, the wrinkle pattern formed a series of squares.

Wrinkling loads were practically always lower by considerable amount than failing loads. In the case of some of the heavier gages of the EA, EB, and EC series stiffeners, another type of wave was observed, involving the reinforcing groove at the side or back of the stiffener. In this case, the formation of waves only slightly preceded failure, and was largely responsible for it. In this case, the pitch of the waves was 3 to 4 times the width of the stiffener side. It was this type of waving that usually precipitated explosionlike failures in which the sections burst as if blown apart over a considerable length. The waves undoubtedly imposed very severe loads on the welds, and the welds were likely unable to hold the elements in place at the advanced stages of waving. See figure no. 76.

Dimensions of outstanding legs

Nominal t	b	$b/2t$
0.010	0.187	6.35
.015	.187	4.23
.020	.187	3.18
.030	.187	2.12
.050	.250	2.50

Dimensions of flat across A section stiffeners

Nominal t	W	$0.5/t$
0.010	0.5	50
.015	.5	33.3
.020	.5	25
.030	.5	16.7
.050	.5	10

Types of failure

The type of failure showed a general classification into several fairly well defined groups. These are listed and described briefly as follows:

Type A.—A failure due to the buckling of the outstanding legs of the stiffener. It was confined usually to the thinner stiffeners. The appearance of the failures is well illustrated at the top and bottom of the right-hand specimen of figure no. 83, and by figure no. 80.

Type B.—When the combined thicknesses of the stiffener and sheet were less than twice the stiffener thickness, the failures were generally precipitated by buckling of the stiffener welding flanges. This type of failure was common to the specimens having very thin sheet. The appearance of this type of failure is shown in figure no. 81.

Type C.—When the stiffener dimensions became sufficient, the sides or backs of the stiffeners became unstable, permitting the formation of waves in those elements which led to their collapse. This type of failure is shown in figures nos. 82 and 90.

Type D.—When a heavy sheet was used in the presence of light stiffeners, a failure such as shown in figure no. 83 occurred. In this figure it may be noted how the heavy sheet has bowed toward the stiffeners, and how the outstanding legs of the stiffener at the failed section have bowed simultaneously toward the sheet.

Type E.—When extreme differences between sheet and stiffener thickness existed, failure often occurred due to the pulling of slugs of welded material from the lighter sheet by the heavier, as may be seen in figure no. 84. This failure is not due to faulty welding but due to too few, or too small welds, and is a somewhat abnormal condition.

Type F.—Due to the formation of severe buckles in the sheet, failure of stiffeners sometimes occurred due to the distortion of the stiffener welding flanges by the sheet buckling. The appearance of the failed specimens was practically the same as that shown in figure no. 85.

Type G.—This failure was due to column failure of the specimens, and was noted before complete collapse usually in the heavier stiffener sections. This type of failure is shown in figures nos. 86 and 90.

Type H.—When there was a rough balance of the elastic stability of all of the elements of the specimens the resulting failure was a general collapse of the complete section. This is illustrated by figure no. 87.

Type I.—When, as in the EA series, the ratio of depth to width of the stiffener exceeded about 1.5 the failure was due to lateral instability of the stiffeners, and was characterized by a waving of the stiffener in a direction parallel to the sheet. Figure no. 88 shows a typical failure of this type.

Type J.—This classification includes all failures due to poor welds and weld failures, due usually to the lack of fusion of the welded material. The greatest portion of these failures occurred when thicknesses of 0.030 and 0.050 were encountered. The poor spot welds and complete disintegration, due to poor welds, will be noted in figure no. 89. Figure no. 90 shows a side view of the failure.

The failures of the corrugated sheets were not classified, and typical buckling failures are shown in figures no. 91 (corrugated sheet alone) and no. 93 (corrugated sheet with flat sheet attached).

Typical column failure for the corrugated sheet is shown in figure no. 92 and for the corrugated sheet with flat sheet attached in figure no. 94.

Weld failures

In the EA, EB, and EC series, particularly for the thicker sheets, considerable difficulty due to poor welding was encountered. Due to the sudden nature of the failures in the majority of cases, it was not always possible to detect weld failures prior to a general exploding of the specimen.

For this reason, it is believed that the scattering of many of the test points is due to weld failures that were not detected. In cases where welds failed prior to a general failure of the specimen, the test was discontinued and a gap in the data exists.

It was rare that a failed weld showed evidence of pulling a slug of welded material from the thinner of two sheets joined together. The majority of the failed welds showed a very small fused area in comparison to the electrode diameter. External appearances of the welds gave no indication of the condition of the welds. In some instances it was noted after failure that attempts had been made to weld through a layer of paint applied along a line of welds due to a specimen number painted on a sheet. Also it was noted on a number of specimens that the specimens had been rewelded over the original welds.

The spot-welding ability or technique of the contractor is held responsible for the failures; and spot welding of stainless steel, as a whole, should not be condemned due to the unsatisfactory nature of the welds experienced during these tests.

Judging from tests on specimens procured from the same and other sources, it is quite possible to so weld the specimens used for these tests that no welds would have failed in sheets of similar thicknesses no matter what the degree of crushing of the specimens might have been.

Since the initiation of the project, Air Corps Specification No. 20011, dated January 27, 1934, has been issued. The essential items of the specification are the requirements of thyratron-tube control and the establishment of standard weld strengths for specific sheet thicknesses to be determined by tension tests on strips joined by a single weld.

The use of a thyratron control is excellent but not essential, and it might be mentioned in passing that the contractor used a thyratron control for timing the welds, and during the later stages of fabrication checked welds for consistency by tension tests and still the welds failed under compressive loads.

Accordingly, it is believed that specification no. 20011 is inadequate in itself in guaranteeing freedom from weld failures on members subject to compression and that it should be amended, or procurement specifications or contracts so worded as to require that in addition to compliance to specification no. 20011 a contractor must demonstrate by suitable compression tests that welded, built-up sections of his design are capable of withstanding crushing after reaching their failing load without weld failures.

I series corrugations

It was hoped that a single curve for the ultimate compressive or buckling stress for the corrugated sections could be established in terms of R/t, R being the radius of curvature of the corrugations and t the thickness. It was found that R/t and L/ρ, or slenderness ratio, were interdependent and that column curves could be established for certain R/t's and buckling curves for certain L/ρ ratios, but that no one curve would express an upper limit.

It will be noted that the curves for certain R/t values have been drawn tangent to a Euler curve for $C=3$, in figure 64.

Previous tests on aluminum-alloy corrugations had indicated that flat-end test conditions closely approximated the end conditions for a fixity coefficient of 3.

In table VII a comparison is made between the strength properties of stainless steel corrugated sheet 24ST aluminum alloy corrugated sheet. The comparison is made on the basis of equal weights of cross section for identical slenderness ratios of 35, 70, and 100.

The ratio of weights is $\frac{0.286}{101}$ or 2.83. In selecting stresses for stainless steel, the R/t has been increased by multiplying by 2.83, corresponding to an equivalent reduction in thickness.

For sheets of aluminum alloy or stainless steel to carry equal loads, the stress developed in the stainless steel must be 2.83 times that developed in the aluminum alloy. Hence, in table VII whenever the ratio of stresses exceeds 2.83 steel offers an advantage in strength over 24ST aluminum alloy sheet of equal weight.

In selecting sections on the basis of equal strength, a more proper basis, the weight ratio would not be quite as large as the strength ratio on the basis of equal weight due to the effect of reducing the thickness of the steel somewhat to bring the strength ratio to *one*.

In the foregoing table no account has been taken of the presence of any covering skin, inasmuch as for the purposes of this discussion, covering skins of proportional thicknesses are in order. One item that will operate against aluminum alloys in comparing with stainless steel is that of protective coatings, which may reach as much as 10 percent of the aluminum alloy weight for thin sheets.

In order to investigate the effect of covering skin on the average stress developed in covered corrugations, flat skin of varying thickness was welded to the corrugations and the resulting specimens loaded in compression.

It was noted throughout these tests that the flat covering skin became wrinkled at very low loads, and that the wrinkle pitch was, on an average, close to the pitch of the corrugations, regardless of the cover skin thickness.

It will be noted from figure 66 that the average failing stress drops off at a rate of about 20,000 lb./sq. in. per 0.01 inch of covering thickness up to a thickness of

about 0.020 inch for 1-inch pitch corrugations, after which the average stress begins to rise again. It is unfortunate that the 0.029-inch thickness was not great enough to determine how far this rise might be carried.

In figure 68 failing loads have been plotted against covering thickness. It will be noted that the total loads vary in a peculiar manner, increasing as the covering thickness increases, in spite of a lowering of the average failing stress.

The data are not as consistent as might be desired, due to the fact that this series of tests was performed by inexperienced personnel, and were the very first tests conducted during the investigation.

Suggestions for future work

Insufficient time has been available to fully investigate all the points suggested during the examination of the available data. The following topics are suggested to anyone interested in a continuance of the investigations, or who may be engaged in a similar investigation:

1. The influence of stiffener sections of other shapes, notably sections having as outstanding legs only the flanges necessary to weld it to the sheet.
2. The development of a most generally efficient stiffener section.
3. An investigation of the influence of stiffeners attached by a single row of welds on the effective width of sheet acting with the stiffener.
4. An investigation of the possibility of determining effective width of sheet in the case of riveted sheet stiffener combinations, particularly in aluminum alloy.
5. An investigation to determine the effect of curvature on the effective width of sheet working with the stiffener.

NOTE

Since the writing of this report, completed about June 1, 1934, those specimens that failed, due to weld failures, have been replaced by the vendor.

The results of tests on these replacement specimens will be presented in an appendix to this report as soon as the data become available, together with data on sheet-stringer combinations involving stiffeners of sections differing from those used in the main investigation.

REFERENCES

1. N. A. C. A. Technical Report No. 356, Strength of Rectangular Flat Plates Under Edge Compression by Schuman and Black.
2. N. A. C. A. Technical Report No. 473, Strength of Thin Walled Cylinders in Compression by Lundquist.
3. Applied Elasticity, Prescott.
4. A. C. T. R., Serial No. 3739, An Investigation of the Available Information on the Strength Properties of Reinforced Skin Construction by C. G. Brown.
5. C. I. T. Paper, The Ultimate Strength of Thin Flat Plates in Compression by E. E. Sechler.
6. N. A. C. A. Technical Note No. 445, Comparison of Three Methods for Calculating the Compressive Strength of Flat and Slightly Curved Sheet and Stiffener Combinations by E. E. Lundquist.
7. Matériel Division, E. S. M. R., Serial No. Str-51-26 (Addendum 2), Compressive Tests on Miscellaneous Stainless Steel Sections for P-26 Stainless Steel Wings by S. R. Carpenter and C. G. Brown.
8. M. I. T. Paper, Notes on the Design of Metal Parts for Use in Aircraft Construction.

TABLE I.—*Physical properties of test specimen material*

[Material Branch tests, reference series R34-93]

Specification	Thickness	U. T. S.	Proportion limit: Tangent	Proportion limit: 0.0001 inch per inch	Yield point (0.002 inch per inch)	Elongation (percent in 2 inches)	Modulus elasticity (1,000 lb./sq. in.)
1	0.0090	176,980	55,440	72,100	163,000	3.5	26,720
1	.0090	191,840	60,990	94,300	157,460	7.5	27,780
2	.0092	183,300	54,240	67,700	168,150	6.0	27,780
2	.0094	188,800	53,080	87,500	144,400	8.0	29,850
3	.0148	187,700	57,350	77,550	157,300	6.5	29,020
4	.0147	188,800	54,350	64,550	154,210	6.5	31,030
5	.0142	179,400	84,390	92,800	165,400	5.0	27,430
6	.0144	191,400	83,200	107,490	164,300	6.5	28,700
	.020	180,500	----------	----------	----------	5.0	----------
	.020	184,500	----------	----------	----------	6.5	----------
7	.0290	185,200	----------	----------	----------	5.0	----------
8	.0307	175,800	----------	----------	----------	12.0	----------
9	.0288	182,600	55,550	76,500	162,150	5.0	25,200
10	.0494	171,700	48,480	64,700	148,690	8.5	25,220
11	.0473	180,160	50,630	69,650	157,800	7.5	24,840
11	.0490	193,890	48,880	77,400	161,700	8.0	28,450

TABLE II.—*Computation of stiffener failing stress*

LENGTH, 9.25 INCHES

0.009 STIFFENER

Sheet thickness (inch)	Sheet area (inch)	Stiffener area (inch)	Total area (1 stiffener)	Failing load (5 stiffeners)	Stiffener failing stress (lb./sq. in.)	σ_s
0.009	0.0079	0.0286	0.0365	14,000	76,700	75,000
.014	.0122	.0286	.0408	16,000	78,300	
.018	.0158	.0286	.0444	20,000	90,200	
.028	.0245	.0286	.0531	27,700	104,300	
.048	.0420	.0286	.0706	38,000	107,600	

0.014 STIFFENER

Sheet thickness (inch)	Sheet area (inch)	Stiffener area (inch)	Total area (1 stiffener)	Failing load (5 stiffeners)	Stiffener failing stress (lb./sq. in.)	σ_s
0.009	0.0079	0.0424	0.0503	24,300	96,600	90,000
.014	.0122	.0424	.0546	28,000	102,200	
.018	.0158	.0424	.0582	31,400	108,000	
.029	.0254	.0424	.0678	41,000	121,000	
.048	.0420	.0424	.0844	54,000	128,000	

0.019 STIFFENER

Sheet thickness (inch)	Sheet area (inch)	Stiffener area (inch)	Total area (1 stiffener)	Failing load (5 stiffeners)	Stiffener failing stress (lb./sq. in.)	σ_s
0.009	0.0079	0.0548	0.0627	35,000	111,800	115,000
.014	.0122	.0548	.0670	39,300	117,200	
.018	.0158	.0548	.0706	42,200	120,000	
.029	.0254	.0548	.0802	54,000	134,000	
.048	.0420	.0548	.0968	73,500	152,000	

0.029 STIFFENER

Sheet thickness (inch)	Sheet area (inch)	Stiffener area (inch)	Total area (1 stiffener)	Failing load (5 stiffeners)	Stiffener failing stress (lb./sq. in.)	σ_s
0.009	0.0079	0.0809	0.0888	52,000	117,000	
.014	.0122	.0809	.0931	54,200	116,400	
.018	.0162	.0809	.0971	58,300	120,000	
.029	.0254	.0809	.1063	70,000	131,000	
.048	.0420	.0809	.1329	95,000	136,000	

0.049 STIFFENER

Sheet thickness (inch)	Sheet area (inch)	Stiffener area (inch)	Total area (1 stiffener)	Failing load (5 stiffeners)	Stiffener failing stress (lb./sq. in.)	σ_s
0.009	0.009	0.144	0.153	88,000	115,000	115,000
.014	.014	.144	.158	91,000	115,000	
.018	.018	.144	.162	95,000	117,200	
.029	.029	.144	.173	112,500	130,000	
.048	.048	.144	.192	145,500	151,500	

LENGTH, 3 INCHES

Sheet thickness (inch)	Stiffener thickness (inch)	Total area (1 stiffener)	Failing load per stiffener	Stiffener failing stress (lb./sq. in.)	σ_s
0.009	0.019	0.0627	8,030	127,800	125,000
.019		.0716	9,000	125,600	
.029		.0802	11,200	139,500	
.009	.029	.0888	13,140	148,100	145,000
.019		.0977	14,380	147,000	
.029		.1063	16,200	152,400	
LENGTH, 6 INCHES					
0.009	0.019	0.0627	7,750	123,400	120,000
.019		.0716	8,700	121,300	
.029		.0802	10,930	136,000	
.009	.029	.0888	11,800	133,000	131,000
.019		.0977	13,080	134,000	
.029		.1063	15,460	145,100	
LENGTH, 12 INCHES					
0.009	0.019	0.0627	6,450	102,800	102,500
.019		.0716	7,620	106,400	
.029		.0802	9,400	117,200	
.009	.029	.0888	9,170	103,200	103,000
.019		.0977	10,470	107,200	
.029		.1063	12,910	121,500	
LENGTH, 18 INCHES					
0.009	0.019	0.0627	4,650	74,100	71,500
.019		.0716	5,750	80,300	
.029		.0802	7,000	87,200	
.009	.029	.0888	6,530	73.500	73,200
.019		.0977	7,900	75,700	
.029		.1063	8,550	80,200	

TABLE III.—*Computation of effective width of sheet working with stiffeners*

A SERIES TESTS

$N=5$ Stiffener $t=0.009$ $\sigma_s=73{,}000$ $\sqrt{\frac{E}{\sigma_s}}=18.88$

t	P	$\frac{P}{(N-1)\sigma_s}$	$\frac{N}{N-1}A_{st}$	$\frac{0.875t}{N-1}$	A_{sh}	W	$\frac{W}{t}$	C
0.009	14,000	0.0479	0.0358	0.0020	0.0101	1.121	124.5	6.6
.014	16,000	.0548		.0031	.0159	1.137	81	4.3
.018	19,000	.0651		.0040	.0253	1.405	78	4.13
.028	28,000	.0959		.0063	.0538	1.920	68.5	3.62
.048	38,000	.1300		.0108	.0834	1.735	36.1	1.91
Stiffener $t=0.014$ $\sigma_s=90{,}000$ $\sqrt{\frac{E}{\sigma_s}}=17.00$								
0.009	24,500	0.0675	0.0530	0.0020	0.0225	2.50	278	16.4
.014	28,000	.0778		.0031	.0217	1.55	111	6.52
.018	31,400	.0872		.0040	.0302	1.68	93	5.45
.029	41,000	.1138		.0063	.0545	1.88	65	3.82
.048	54,000	.1500		.0108	.0862	1.79	37.5	2.20
Stiffener $t=0.019$ $\sigma_s=105{,}000$ $\sqrt{\frac{E}{\sigma_s}}=15.75$								
0.009	35,000	0.0834	0.0675	0.0020	0.0139	1.55	171	10.85
.014	39,300	.0937		.0031	.0231	1.65	118	7.5
.018	42,200	.1005		.0040	.0290	1.61	90	5.7
.029	54,000	.1285		.0063	.0547	1.88	65	4.13
.048	73,500	.1750		.0108	.1067	2.27	47.3	3.00
Stiffener $t=0.049$ $\sigma_s=115{,}000$ $\sqrt{\frac{E}{\sigma_s}}=15.02$								
0.009	87,500	0.1900	0.180	0.0022	0.0078	0.866	96.5	6.4
.014	92,500	.2010		.0035	.0175	1.245	89	5.92
.018	96,000	.2085		.0045	.0245	1.36	75.5	5.02
.029	110,500	.2400		.0073	.0527	1.82	62.6	4.17
.048	145,500	.3180		.0120	.1260	2.62	54.6	3.63

B SERIES TESTS

t	P	$\frac{P}{(N-1)\sigma_s}$	$\frac{N}{N-1}A_{st}$	$\frac{0.875t}{N-1}$	A_{sh}	W	$\frac{W}{t}$	C
$N=4$ Stiffener $t=0.009$ $\sigma_s=73{,}000$ $\sqrt{\frac{E}{\sigma_s}}=18.88$								
0.010	11,000	0.0502	0.0515	0.0029				
.020	16,500	.0753		.0058	0.0180	0.90	45	2.38
.030	21,750	.0993		.0087	.0391	1.303	43.5	2.30
.040	27,100	.1238		.0117	.0606	1.517	37.8	2.00
.050	32,500	.1483		.0146	.0822	1.643	32.8	1.74
Stiffener $t=0.019$ $\sigma_s=105{,}000$ $\sqrt{\frac{E}{\sigma_s}}=15.75$								
0.010	29,000	0.0921	0.0730	0.0029	0.0162	1.62	162	10.3
.020	35,750	.1134		.0058	.0346	1.73	86	5.45
.030	43,500	.1428		.0087	.0568	1.89	63	4.00
.040	52,700	.1728		.0117	.0881	2.20	55	3.49
.050	64,500	.2095		.0146	.1169	2.34	47	2.92
Stiffener $t=0.029$ $\sigma_s=115{,}000$ $\sqrt{\frac{E}{\sigma_s}}=15.02$								
0.010	42,500	0.1232	0.1078	0.0029	0.0154	1.54	154	10.3
.020	50,000	.1450		.0058	.0314	1.57	78	5.19
.030	59,000	.1680		.0087	.0515	1.72	57	3.79
.040	68,500	.1984		.1168	.0790	1.98	49	3.26
.050	78,700	.2280		.1458	.1057	2.11	42	2.79

Stiffener $t=0.049$ $\sigma_s=115{,}000$ $\sqrt{\frac{E}{\sigma_s}}=15.02$

t	P	$\frac{P}{(N-1)\sigma_s}$	$\frac{N}{N-1}A_{st}$	$\frac{1.00t}{N-1}$	A_{sh}	W	$\frac{W}{t}$	C
0.010	70,000	0.2030	0.192	0.0033	0.008	0.80	80	
.020	76,500	.2220		.0066				
.030	85,500	.2480		.0099	.046	1.53	51	3.39
.040	98,000	.2840		.0133	.079	1.98	49	3.26
.050	112,500	.3260		.0166	.117	2.34	47	3.13

TABLE III.—*Computation of effective width of sheet working with stiffeners*

C SERIES TESTS

t	P	$\frac{P}{(N-1)\sigma_s}$	$\frac{N}{N-1}A_{st}$	$\frac{0.875t}{N-1}$	A_{sh}	W	$\frac{W}{t}$	C
$N=5$ Stiffener $t=0.019$ $L=6$ $\sigma_s=120{,}000$ $\sqrt{\frac{E}{\sigma_s}}=14.71$								
0.009	38, 750	0.0807	0.0675	0.0020	0.0112	1.248	138	9.36
.019	43, 500	.0906		.0042	.0189	.995	52.4	3.55
.029	54, 800	.1141		.0065	.0401	1.384	47.7	3.22
$L=12$ $\sigma_s=102{,}500$ $\sqrt{\frac{E}{\sigma}}=15.90$								
0.009	32, 000	0.0780	0.0675	0.0020	0.0085	0.945	105	6.6
.019	38, 000	.0926		.0042	.0209	1.10	58	3.65
.029	47, 000	.1145		.0065	.0405	1.395	48	3.02
$L=18$ $\sigma_s=71{,}500$ $\sqrt{\frac{E}{\sigma_s}}=19.08$								
0.009	23, 100	0.0808	0.0675	0.0020	0.0113	1.255	139.5	7.32
.019	28, 750	.1005		.0042	.0288	1.514	79.6	4.17
.029	35, 000	.1224		.0065	.0504	1.735	59.8	3.14

TABLE IV.—*Column tests—individual stiffeners*

[Stiffener thickness, 0.029 inch]

FLAT-END TESTS

Length (inches)	Sheet thickness (inch)	ρ (inch)	L/ρ	Failing load (pounds)	Area [1] (square inch)	Failing stress (lb./sq. in.)
0.97	0.021	0.2247	4.3	14, 320	0.1045	137, 000
.94	.021	.2247	4.2	14, 010	.0965	145, 300
.89	.019	.2235	4.0	13, 845	.1022	135, 400
1.46	.021	.2247	6.5	13, 800	.1032	133, 800
6.00	.021	.2247	26.7	13, 400	.1002	133, 700
9.23	.019	.2235	41.3	10, 860	.0946	114, 700
9.23	.019	.2235	41.3	10, 150	.0960	105, 800
9.22	.019	.2235	41.2	11, 000	.0956	115, 000
2.20	.019	.2235	41.1	11, 620	.0946	122, 800
13.81	.021	.2247	61.5	9, 040	.0985	91, 700
13.84	.019	.2235	62.0	9, 410	.0944	100, 000
13.82	.021	.2247	61.5	9, 170	.0988	92, 900
18.17	.019	.2235	82.6	8, 480	.0970	87, 400
KNIFE-EDGE TESTS [2]						
3.48	0.019	0.2235	15.6	12, 485	0.0954	131, 000
4.49	.019	.2235	20.1	12, 080	.0959	126, 000
7.54	.020	.2240	33.6	9, 470	.0972	97, 500
7.54	.021	.2247	33.5	10, 240	.0994	103, 200
10.72	.019	.2235	48.0	6, 800	.0956	71, 100
10.70	.019	.2235	47.9	7, 500	.0946	79, 300
15.32	.021	.2247	68.1	4, 630	.0988	46, 800
15.34	.019	.2235	68.6	4, 870	.0944	51, 600
19.97	.019	.2235	89.4	2, 765	.0970	28, 500

[1] Areas were determined by weighing specimens.
[2] In the knife-edge tests, L includes 1.50 inches due to the knife-edges.

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TABLE V.—*Section properties of stiffeners*

½×½×0.030 CLOSED SECTION STIFFENERS

Closing strip thickness (inch)	Total area (square inch)	C. G. location (inch)	$I_{c.g.}$ (inch)⁴	ρ (inch)
0.010	0.0943	0.301	0.00437	0.216
.020	.1030	.274	.00518	.224
.030	.1118	.251	.00587	.229
.050	.1293	.211	.00721	.236

½×½ OPEN SECTION STIFFENERS

Stiffener t (inch)	Area (square) inch)	C. G. location (inch)	$I_{c.g.}$ (in.)⁴	ρ (inch)	A/t (inch)
0.010	0.0286	0.333	0.00115	0.2005	2.8575
.020	.0572	.333	.00230	.2005	2.8575
.030	.0855	.333	.00343	.2005	2.8575
.050	.1429	.333	.00575	.2005	2.8575

TABLE VI.—*Computation of slenderness ratio of working units of sheet and stiffener*

Stiffener			Sheet [1]				Total area	Total I_b	$d'=\frac{0.333A_{st}+\frac{t}{2}A_{sh}}{A_T}$	$A_t(d')^2$	$I_{c.g.}$	$\rho=\sqrt{\frac{I}{A}}$	L	L/ρ	σ_s
t	Area	I_b	t	W	Area	I_b									
0.0283	0.0809	0.01220	0.010	1.54	0.0154	0.0000005	0.0963	0.01220	0.2805	0.00760	0.0046	0.2185	9.25	--------	
--------	--------	--------	.020	1.57	.0314	.0000042	.1123	.01220	.2420	.00660	.0056	.222	9.25	--------	
--------	--------	--------	.030	1.72	.0515	.0000155	.1325	.01221	.2190	.00635	.00586	.2225	9.25	41.5	115,000
--------	--------	--------	.040	1.98	.0790	.0000423	.1601	.01224	.1780	.00509	.00715	.211	9.25	--------	
--------	--------	--------	.050	2.11	.1057	.000088	.1864	.01229	.1586	.00470	.00759	.2015	9.25	46	

[1] From table IV.

TABLE VII.—*Comparison of strength properties of corrugated sheets of* 24ST *aluminum alloy and stainless steel, for flat end conditions*

Stainless steel		Dural		Stress ratio
R/t	Failing P/A	R/t	Failing P/A	
		$L/\rho=35$		
33	174,000	10.5	48,600	3.55
88	145,000	30.7	33,200	4.37
100	132,000	35	30,700	4.30
162	96,000	57	21,400	4.50
264	46,000	92	13,200	3.48
		$L/\rho=70$		
33	122,000	10.5	36,500	3.34
88	111,000	30.7	33,200	3.34
100	106,000	35	30,700	3.46
163	63,000	57	21,400	2.94
264	43,000	92	13,200	3.26
		$L/\rho=100$		
33	87,000	10.5	27,500	3.16
88	86,000	30.7	27,500	3.12
100	84,000	35	27,500	3.05
162	52,000	57	21,400	2.43
264	40,000	92	13,200	3.02

TABLE VIII.—*Stainless steel test specimens*

Specification No.	Weight (lbs.)	Area (square inch)	Failing load (lbs.)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Percent reinforcement	Pitch (inches)	Type of failure
					Stiffener (inch)	Sheet (inch)								
A-1a	0.587	0.2200	13,720	62,400	0.010	0.009	9.23	8.33	5	0.0750	0.1450	63.4	1.86	F
A-1b	.575	.2155	14,470	67,250	.010	.009	9.23	8.32	5	.0749	.1406	62.7	1.86	F
A-2a	.530	.1979	11,630	58,900	.010	.009	9.25	9.27	4	.0835	.1144	53.2	2.79	F
A-2b	.526	.1963	11,150	56,750	.010	.009	9.26	9.26	4	.0834	.1129	52.9	2.79	F
A-3a	.464	.1754	9,200	52,400	.010	.009	9.25	9.24	3	.0831	.0923	44.9	4.19	H
A-3b	.451	.1700	8,700	51,200	.010	.009	9.27	9.28	3	.0835	.0865	43.3	4.19	H
A-4a	.328	.1238	5,610	45,300	.010	.009	9.26	7.40	2	.0666	.0572	32.8	6.51	F
A-4b	.318	.1200	5,370	44,800	.010	.009	9.25	7.42	2	.0666	.0534	31.3	6.51	F
A-5a	.440	.1663	5,870	35,390	.010	.009	9.25	12.07	2	.1086	.0577	22.4	11.16	F
A-5b	.442	.1670	5,920	35,400	.010	.009	9.26	12.07	2	.1086	.0584	22.5	11.16	F
A-6a	.860	.326	21,500	66,000	.010	.014	9.22	8.87	7	.1241	.2019	60.8	1.33	A
A-6b	.865	.327	21,650	66,200	.010	.014	9.24	8.88	7	.1243	.2027	60.8	1.33	A
A-7a	.859	.3255	19,350	59,500	.010	.014	9.23	10.88	6	.1522	.1733	50.8	2.00	F
A-7b	.855	.3240	18,210	56,200	.010	.014	9.23	10.88	6	.1522	.1718	50.5	2.00	F
A-8a	.662	.251	13,120	52,200	.010	.014	9.23	9.89	4	.1243	.1267	43.0	2.99	H
A-8b	.687	.2605	14,880	57,100	.010	.014	9.23	9.85	4	.1239	.1366	45.0	2.99	H
A-9a	.620	.2350	10,070	42,800	.010	.014	9.23	10.19	3	.1426	.0924	32.1	4.65	F
A-9b	.624	.2365	9,790	41,300	.010	.014	9.23	10.19	3	.1426	.0939	32.4	4.65	F
A-10a	.490	.1858	6,660	35,800	.010	.015	9.23	8.84	2	.1325	.0533	18.4	7.96	F
A-10b	.492	.1866	6,530	35,000	.010	.015	9.23	8.86	2	.1330	.0536	18.4	7.96	F
A-11a	.990	.3745	25,360	67,600	.010	.018	9.24	9.28	7	.1670	.2075	54.0	1.40	H
A-11b	1.003	.380	25,730	67,600	.010	.018	9.23	9.29	7	.1671	.2129	45.3	1.40	F
A-12a	.835	.3155	18,570	59,000	.010	.018	9.25	9.29	5	.1671	.1484	44.0	2.10	F
A-12b	.849	.320	19,485	60,800	.010	.018	9.26	9.29	5	.1671	.1529	44.8	2.10	F
A-13a	.842	.318	16,940	53,400	.010	.018	9.25	10.66	4	.1920	.1260	34.9	3.26	F
A-13b	.818	.309	16,240	52,600	.010	.018	9.25	10.67	4	.1920	.1170	33.3	3.26	F
A-14a	.809	.306	12,570	41,100	.010	.018	9.23	12.07	3	.2175	.0885	22.8	5.58	H
A-14b	.818	.310	12,030	38,800	.010	.018	9.22	12.04	3	.2170	.0930	23.6	5.58	A
A-15a	.829	.312	7,340	23,500	.010	.018	9.27	13.42	2	.2418	.0702	13.5	12.55	G
A-15b	.805	.303	7,400	24,400	.010	.018	9.27	13.43	2	.2418	.0612	11.9	12.55	G
A-16a	1.265	.4775	35,900	75,000	.010	.028	9.26	9.28	7	.2597	.2178	44.2	1.40	A
A-16b	1.242	.4705	37,150	78,900	.010	.028	9.23	9.28	7	.2597	.2108	43.5	1.40	A
A-17a	1.113	.4205	31,230	74,200	.010	.029	9.24	9.57	5	.2775	.1430	31.2	2.17	E
A-17b	1.117	.422	29,900	70,800	.010	.029	9.25	9.56	5	.2770	.1450	31.5	2.17	E
A-18a	1.220	.462	23,600	51,100	.010	.028	9.23	12.06	4	.3380	.1240	22.9	3.72	E
A-18b	1.228	.464	20,700	44,600	.010	.029	9.25	12.05	4	.3500	.1140	20.9	3.72	E
A-19a	.860	.326	10,180	31,200	.010	.029	9.23	9.27	2	.2690	.0370	10.5	8.37	A
A-19b	.870	.329	11,260	34,200	.010	.029	9.24	9.26	2	.2685	.0605	11.1	8.37	E
A-20a	1.653	.625	54,300	86,900	.010	.049	9.24	8.58	7	.4200	.2050	31.5	1.30	E
A-20b	1.633	.619	52,080	84,200	.010	.049	9.23	8.58	7	.4200	.1990	30.9	1.30	A
A-21a	1.632	.620	35,400	57,100	.010	.048	9.21	9.83	5	.4710	.1490	21.8	2.23	E
A-21b	1.639	.6195	39,600	64,000	.010	.048	9.24	9.81	5	.4710	.1485	21.8	2.23	E
A-22a	1.637	.620	24,510	39,600	.010	.048	9.23	10.92	3	.5240	.0960	11.75	5.02	D
A-22b	1.631	.617	20,970	34,000	.010	.048	9.24	10.94	3	.5250	.0920	11.35	5.02	E
A-23a	1.628	.614	15,320	25,000	.010	.048	9.26	11.50	2	.5520	.0620	15.7	5.74	E
A-23b	1.630	.617	13,900	22,500	.010	.048	9.24	11.52	2	.5520	.0623	15.8	5.74	J
A-24a	.826	.3125	25,710	82,300	.015	.009	9.24	11.32	5	.1019	.2106	64.0	2.61	F
A-24b	.821	.3105	23,150	74,500	.015	.009	9.24	11.28	5	.1015	.2090	63.9	2.61	F
A-25a	.748	.283	18,750	66,400	.015	.009	9.24	12.64	4	.1138	.1692	54.5	3.92	F
A-25b	.753	.285	20,680	72,600	.015	.009	9.24	12.67	4	.1140	.1710	54.8	3.92	F
A-26a	.639	.2405	13,500	56,100	.015	.009	9.28	12.66	3	.1140	.1265	44.4	5.88	F
A-26b	.644	.2435	15,500	63,600	.015	.009	9.24	12.64	3	.1138	.1297	45.0	5.88	F
A-27a	.470	.1775	10,650	60,000	.015	.009	9.26	10.04	2	.0904	.0871	34.6	9.15	F
A-28a	.621	.2345	9,920	42,200	.015	.009	9.25	16.58	2	.1492	.0853	23.2	15.68	F
A-29a	1.051	.397	33,250	83,700	.015	.014	9.25	10.18	6	.1425	.2545	62.0	1.86	F
A-29b	1.038	.392	32,970	84,000	.015	.014	9.25	10.19	6	.1426	.2494	61.5	1.86	F
A-30a	.798	.301	23,580	78,400	.015	.014	9.26	9.28	4	.1300	.1710	52.1	2.80	F
A-30b	.791	.299	22,670	75,700	.015	.014	9.25	9.29	4	.1300	.1690	51.9	2.80	F
A-31a	.687	.2605	16,910	64,900	.015	.014	9.22	9.28	3	.1300	.1305	42.5	4.20	F
A-31b	.693	.262	17,850	68,200	.015	.014	9.24	9.30	3	.1302	.1318	42.7	4.20	F
A-32a	.853	.322	16,550	51,400	.015	.014	9.24	13.95	3	.1958	.1262	31.5	6.54	F
A-32b	.868	.328	15,650	47,500	.015	.014	9.24	13.96	3	.1958	.1268	31.5	6.54	F
A-33a	.680	.2575	11,430	44,500	.015	.014	9.24	12.08	2	.1690	.0885	22.0	11.19	F
A-34a	1.206	.4555			.015	.018	9.24	8.73	7	.1570	.2985	64.5	1.31	
A-34b	1.206	.4555	41,100	90,250	.015	.018	9.24	8.73	7	.1570	.2985	64.3	1.31	F
A-35a	.979	.369	30,530	82,700	.015	.018	9.28	8.72	5	.1569	.2121	54.5	1.96	F
A-35b	.995	.375	32,210	85,900	.015	.018	9.27	8.71	5	.1568	.2182	55.4	1.96	F
A-36a	.922	.3495	26,410	72,900	.015	.019	9.22	9.70	4	.1842	.1653	42.4	2.94	F
A-36b	.906	.3435	24,140	70,200	.015	.019	9.22	9.71	4	.1843	.1592	41.6	2.94	F
A-37a	.827	.312	18,400	59,000	.015	.018	9.26	10.05	3	.1810	.1310	33.5	4.58	F
A-37b	.820	.310	16,300	52,600	.015	.018	9.25	10.04	3	.1809	.1291	33.0	4.58	J
A-38a	1.133	.431	17,200	40,000	.015	.018	9.20	16.57	3	.2980	.1330	23.9	7.84	G
A-38b	1.150	.436	19,870	45,550	.015	.019	9.22	16.56	3	.3145	.1215	21.4	7.84	G
A-39a	1.441	.543	56,000	103,300	.015	.029	9.28	8.74	7	.2535	.2895	52.1	1.31	E
A-39b	1.454	.549	55,470	101,100	.015	.029	9.26	8.75	7	.2537	.2953	52.7	1.31	E
A-40a	1.230	.465	40,610	87,400	.015	.029	9.24	8.74	5	.2535	.2115	42.6	1.96	F
A-40b	1.235	.467	42,950	91,900	.015	.029	9.24	8.72	5	.2530	.2140	42.9	1.96	G
A-41a	1.205	.458	31,890	69,700	.015	.028	9.20	10.04	4	.2815	.1765	34.0	3.05	A
A-41b	1.211	.457	34,870	76,250	.015	.029	9.26	10.03	4	.2905	.1665	32.0	3.05	A
A-42a	1.203	.455	28,050	61,900	.015	.029	9.24	11.34	3	.3200	.1260	21.7	5.23	F
A-42b	1.210	.4575	26,500	58,000	.015	.029	9.24	11.34	3	.3290	.1285	22.0	5.23	F
A-43a	1.199	.4535	15,960	35,200	.015	.028	9.24	12.64	2	.3540	.0995	13.1	11.76	E
A-43b	1.194	.451	51,840	115,200	.015	.028	9.26	12.65	2	.3540	.0970	13.1	11.76	
A-44a	2.316	.875	95,800	109,400	.015	.048	9.24	10.32	9	.4955	.3795	42.8	1.18	A
A-44b	2.324	.880	98,780	112,100	.015	.048	9.24	10.31	9	.4950	.3850	43.0	1.18	A
A-45a	1.958	.740	66,800	90,300	.015	.048	9.25	10.04	6	.4820	.2580	32.4	1.83	F
A-45b	1.960	.740	74,100	100,000	.015	.048	9.26	10.04	6	.4820	.2580	32.4	1.83	H
A-46a	1.769	.665	49,450	74,300	.014	.048	9.27	10.30	4	.4945	.1705	22.0	3.14	F
A-46b	1.769	.669	47,400	70,900	.014	.048	9.25	10.30	4	.4945	.1745	22.4	3.14	F
A-47a	2.283	.864	33,300	38,200	.015	.048	9.24	15.00	3	.7200	.144	12.4	7.06	F
A-47b	2.268	.8585	30,030	35,100	.015	.048	9.24	15.00	3	.7200	.1385	12.0	7.06	F
A-48a	2.252	.859	18,220	21,200	.015	.048	9.16	15.78	2	.7575	.1015	66.6	14.90	D

TABLE VIII.—*Stainless steel test specimens*—Continued

Specification No.	Weight (lbs.)	Area (square inch)	Failing load (lbs.)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Percent reinforcement	Pitch (inches)	Type of failure
					Stiffener (inch)	Sheet (inch)								
A-48b	2.258	0.859	19,600	22,800	0.015	0.048	9.20	15.77	2	0.7570	0.1020	66.6	14.90	D
A-49a	1.217	.4605	48,150	104,400	.020	.009	9.23	9.26	7	.0834	.3771	81.0	1.40	E
A-49b	1.222	.463	50,600	109,300	.020	.009	9.23	9.30	7	.0837	.3793	81.2	1.40	E
A-50a	.984	.3715	36,800	99,000	.020	.009	9.25	10.55	5	.0950	.2765	72.0	2.40	E
A-50b	.982	.3705	35,800	96,600	.020	.009	9.26	10.50	5	.0945	.2760	72.0	2.40	E
A-51a	.886	.335	20,900	62,400	.020	.010	9.24	12.18	4	.1218	.2132	58.8	3.73	J
A-51b	.877	.3325	28,220	84,900	.020	.010	9.22	12.10	4	.1210	.2115	58.6	3.73	E
A-52a	.720	.2735	20,930	76,500	.020	.009	9.20	12.10	3	.1090	.1645	52.1	5.60	E
A-52b	.720	.2725	21,000	77,100	.020	.009	9.24	12.10	3	.1090	.1635	52.0	5.60	E
A-53a	.512	.1934	14,400	74,500	.020	.009	9.26	9.30	2	.0837	.1097	42.0	8.40	E
A-53b	.509	.192	12,900	67,100	.020	.009	9.26	9.30	2	.0837	.1083	41.8	8.40	E
A-54a	1.223	.4615			.020	.014	9.25	9.54	6	.1336	.3279	69.6	1.71	
A-54b	1.221	.4640	37,530	80,800	.020	.014	9.21	9.42	6	.1318	.3322	69.8	1.71	J
A-55a	.920	.347	31,900	92,000	.020	.014	9.26	8.89	4	.1244	.2226	59.8	2.67	F
A-55b	.920	.348	32,100	92,200	.020	.014	9.25	8.92	4	.1249	.2231	59.8	2.67	F
A-56a	.762	.289	21,200	73,450	.020	.014	9.23	8.90	3	.1246	.1644	49.4	4.00	F
A-56b	.766	.289	23,300	80,600	.020	.014	9.26	8.90	3	.1246	.1644	49.4	4.00	F
A-57a	.918	.347	23,700	68,300	.020	.014	9.24	12.89	3	.1803	.1667	39.8	6.00	F
A-57b	.922	.349	23,500	67,400	.020	.014	9.23	12.94	3	.1811	.1679	39.9	6.00	F
A-58a	.671	.254	15,000	59,000	.020	.014	9.24	10.21	2	.1430	.1110	29.8	9.32	F
A-58b	.671	.254	15,250	60,000	.020	.014	9.24	10.23	2	.1432	.1108	29.8	9.32	J
A-59a	1.365	.517	45,300	87,600	.020	.018	9.23	10.26	6	.1847	.3323	62.3	1.87	J
A-59b	1.353	.511	51,690	101,200	.020	.018	9.25	10.27	6	.1849	.3261	61.8	1.87	H
A-60a	1.034	.390	29,450	75,500	.020	.019	9.26	9.30	4	.1767	.2133	50.0	2.80	H
A-60b	1.025	.386	33,500	86,800	.020	.019	9.26	9.29	4	.1764	.2096	49.7	2.80	H
A-61a	.891	.337	25,000	74,300	.020	.019	9.24	9.28	3	.1762	.1608	42.4	4.20	H
A-61b	.880	.333	24,650	77,000	.020	.018	9.24	9.28	3	.1670	.1660	42.2	4.20	H
A-62a	.649	.246	16,250	66,000	.020	.018	9.22	7.44	2	.1339	.1121	32.3	6.54	H
A-62b	.658	.2495	17,250	69,100	.020	.018	9.23	7.44	2	.1339	.1156	32.9	6.54	H
A-63a	.879	.3315	16,300	49,200	.020	.018	9.26	12.10	2	.2179	.1136	22.0	11.20	H
A-63b	.884	.3340	16,100	48,200	.020	.018	9.24	12.08	2	.2175	.1165	22.4	11.20	H
A-64a	1.876	.710	82,650	116,300	.020	.029	9.23	9.56	8	.2775	.4325	60.0	1.24	J
A-64b	1.858	.7045			.020	.029	9.23	9.56	8	.2775	.4270	59.7	1.24	J
A-65a	1.642	.623	67,500	108,300	.020	.029	9.22	10.22	6	.2965	.3265	50.0	1.87	J
A-65b	1.642	.623	61,090	98,200	.020	.029	9.22	10.24	6	.2975	.3255	50.0	1.87	F
A-66a	1.281	.485	44,310	91,500	.020	.029	9.23	9.28	4	.2690	.2160	40.0	2.80	J
A-66b	1.279	.484	43,210	89,600	.020	.029	9.24	9.28	4	.2690	.2150	39.9	2.80	J
A-67a	1.171	.443	33,250	75,400	.020	.029	9.24	9.61	3	.2786	.1644	30.1	4.36	F
A-67b	1.164	.440	31,320	71,000	.020	.029	9.25	9.61	3	.2786	.1614	29.9	4.36	F
A-68a	.935	.353	20,480	58,100	.020	.029	9.25	8.36	2	.2425	.1105	20.3	7.47	G
A-69a	2.550	.966	114,700	118,800	.020	.048	9.22	9.84	9	.4715	.4945	50.5	1.12	G
A-69b	2.550	.966	117,100	121,300	.020	.048	9.22	9.84	9	.4715	.4945	50.5	1.12	G
A-70a	2.055	.777	88,400	113,700	.020	.048	9.24	9.30	6	.4460	.3310	40.6	1.68	G
A-70b	2.052	.777	89,500	116.200	.020	.048	9.23	9.29	6	.4455	.3315	40.6	1.68	G
A-71a	1.686	.642	32.000	50,000	.020	.048	9.18	8.70	4	.4175	.2245	30.9	2.61	J
A-71b	1.700	.643	43,750	68,100	.020	.048	9.24	8.71	4	.4180	.2250	31.0	2.61	J
A-72a	1.701	.643	46,660	72,650	.020	.048	9.25	9.85	3	.4725	.1705	20.9	4.48	F
A-72b	1.701	.644	40,080	63,400	.020	.048	9.24	9.84	3	.4720	.1720	21.0	4.48	F
A-73a	1.705	.645	21,480	33,400	.020	.048	9.24	10.96	2	.5255	.1195	11.0	10.08	J
A-73b	1.705	.6445	21,220	33,000	.020	.048	9.25	10.96	2	.5255	.1190	10.9	10.08	J
A-74a	1.298	.494	51,000	103.300	.030	.010	9.20	9.30	5	.0930	.401	79.2	2.11	G
A-74b	1.301	.486	55,120	113,400	.030	.010	9.20	9.34	5	.0934	.3926	78.8	2.11	F
A-75a	1.125	.4245	37,550	88,600	.032	.009	9.26	11.73	4	.1057	.3188	72.4	3.61	F
A-75b	1.166	.441	44,700	101,400	.032	.010	9.23	11.72	4	.1172	.3238	72.5	3.61	F
A-76a	.932	.3515	29,700	84,500	.030	.009	9.26	12.12	3	.1091	.2424	61.5	5.62	F
A-76b	.942	.3565	29,200	81,900	.030	.009	9.24	12.12	3	.1091	.2474	62.0	5.62	F
A-77b	.648	.2455	20,200	82,300	.030	.009	9.24	9.27	2	.0834	.1621	51.6	8.43	F
A-78a	.760	.288	20,700	71,900	.030	.009	9.22	13.56	2	.1220	.166	42.1	12.65	F
A-78b	.760	.2875	20,250	70,500	.030	.009	9.24	13.55	2	.1220	.1655	42.0	12.65	F
A-79a	1.500	.567	52,100	91,900	.030	.014	9.24	11.20	5	.1568	.4102	69.5	2.58	F
A-79b	1.478	.559	53,850	96,200	.030	.014	9.25	11.18	5	.1565	.4025	69.1	2.58	F
A-80a	.990	.375	33,000	88,000	.030	.014	9.23	8.92	3	.1248	.2502	59.6	4.02	F
A-80b	.987	.372	32,700	87,900	.030	.014	9.26	8.92	3	.1248	.2472	59.3	4.02	F
A-81a	1.110	.420	30,900	73,600	.030	.014	9.23	12.93	3	.1810	.2390	48.5	6.02	F
A-81b	1.137	.429	33,350	77,700	.030	.014	9.26	12.93	3	.1810	.2420	49.5	6.02	G
A-82a	.805	.303	22,100	73,000	.030	.014	9.27	9.95	2	.1393	.1637	39.3	9.04	F
A-82b	.788	.298	21,650	72,700	.030	.014	9.24	9.93	2	.1390	.1590	38.6	9.04	F
A-83a	1.775	.6725	68,500	101,900	.030	.018	9.22	9.91	6	.1783	.4942	71.7	1.81	B
A-83b	1.763	.669	32,000	48,000	.030	.018	9.22	9.92	6	.1785	.4905	71.5	1.81	J
A-84a	1.309	.495	46,440	93,900	.030	.019	9.24	9.32	4	.1771	.3179	59.7	2.81	B
A-84b	1.309	.495	48,920	98,800	.030	.019	9.24	9.33	4	.1772	.3178	59.7	2.81	B
A-85a	1.100	.417	36,250	86,900	.030	.019	9.22	9.31	3	.1770	.2400	49.9	4.22	B
A-85b	1.085	.411	36,200	88,000	.030	.018	9.22	9.33	3	.1680	.2430	51.5	4.22	B
A-86a	1.311	.4955	33,250	67,100	.030	.018	9.24	13.55	3	.2440	.2515	42.3	6.33	B
A-86b	1.299	.490	32,770	66,900	.030	.018	9.25	13.55	3	.2440	.2460	41.9	6.33	B
A-87a	.953	.3605	23,200	64,400	.030	.018	9.24	10.71	2	.1930	.1675	32.2	9.84	B
A-88a	2.397	.908	111,250	122,600	.030	.029	9.22	9.28	8	.2690	.639	69.5	1.20	G
A-88b	2.397	.908	109,700	120,800	.030	.029	9.22	9.29	8	.2693	.6387	69.5	1.20	G
A-89a	2.047	.775	86,100	111,000	.031	.029	9.22	10.22	6	.2965	.4785	59.5	1.87	H
A-89b	2.058	.7785	84,900	169,000	.030	.029	9.24	10.26	6	.2975	.4810	59.5	1.87	H
A-90a	1.563	.592	56,500	95,500	.030	.029	9.22	9.30	4	.2695	.3225	49.8	2.81	H
A-90b	1.552	.588	55,300	94,100	.030	.029	9.23	9.32	4	.2705	.3175	49.4	2.81	H
A-91a	1.355	.512	44,150	86,200	.031	.029	9.25	9.32	3	.2705	.2415	39.6	4.22	H
A-91b	1.347	.511	45,000	88,000	.031	.029	9.21	9.34	3	.2707	.2403	39.6	4.22	H
A-92a	1.710	.647	33,650	59,700	.030	.029	9.24	14.02	3	.4065	.2405	29.7	6.56	H
A-92b	1.708	.646	38,500	58,600	.030	.029	9.24	14.00	3	.4060	.2400	29.6	6.56	H
A-93a	3.186	1.208	141,300	117,200	.030	.048	9.23	9.84	9	.4720	.7360	60.3	1.12	G
A-93b	3.186	1.208	140,800	116,600	.030	.048	9.22	9.83	9	.4815	.7365	60.3	1.12	J
A-94a	2.903	1.103	128,800	116,800	.030	.049	9.21	11.02	7	.5400	.5630	49.2	1.69	J
A-94b	2.900	1.104	118,700	107,400	.030	.048	9.20	11.02	7	.5290	.5750	50.3	1.69	J
A-95a	2.495	.943	91,700	97,300	.030	.048	9.25	11.00	5	.5280	.4150	40.7	2.53	J
A-95b	2.488	.941	87,400	92,800	.030	.048	9.24	11.00	5	.5280	.4130	40.5	2.53	J
A-96a	2.496	.945	79,900	84,500	.030	.048	9.22	12.68	4	.6085	.3365	30.8	3.93	J
A-96b	2.496	.944	79,600	84,400	.030	.048	9.24	12.68	4	.6085	.3355	30.8	3.93	J

TABLE VIII.—*Stainless steel test specimens*—Continued

Specification No.	Weight (lbs.)	Area (square inch)	Failing load (lbs.)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Percent reinforcement	Pitch (inches)	Type of failure
					Stiffener (inch)	Sheet (inch)								
A-97a	2.502	0.947	48,800	51,500	0.030	0.048	9.23	14.35	3	0.6890	0.2580	21.0	6.74	J
A-97b	2.502	.946	51,100	54,000	.030	.048	9.25	14.37	3	.6900	.2560	20.9	6.74	J
A-98a	2.958	1.115	124,600	111,700	.050	.010	9.27	10.35	7	.1035	1.0115	90.2	1.56	G
A-98b	2.906	1.100	119,200	108,300	.050	.010	9.24	10.40	7	.1040	.9960	90.1	1.56	J
A-99a	1.803	.682	68,700	100,100	.050	.009	9.24	11.50	4	.1035	.5785	82.0	3.51	J
A-99b	1.800	.682	68,000	99,800	.050	.009	9.23	11.55	4	.1040	.5780	82.0	3.51	J
A-100a	1.462	.551	55,040	100,000	.050	.009	9.26	13.06	3	.1175	.4335	72.8	6.02	G
A-100b	1.464	.5545	54,780	99,000	.050	.009	9.24	13.05	3	.1174	.4371	72.8	6.02	G
A-101a	1.004	.3795	35,750	94,200	.050	.009	9.25	10.35	2	.0932	.2863	63.0	9.37	G
A-101b	1.000	.378	37,150	98,250	.050	.009	9.25	10.40	2	.0936	.2844	62.6	9.37	G
A-102a	2.285	.866	100,900	116,400	.050	.013	9.22	11.12	5	.1445	.7215	81.6	2.51	G
A-102b	2.285	.866	97,500	112,700	.050	.013	9.22	11.05	5	.1437	.7223	81.6	2.51	G
A-103a	2.052	.774	62,400	80,600	.050	.014	9.26	13.88	4	.1942	.5798	70.6	4.30	J
A-103b	2.041	.770	75,910	98,500	.050	.014	9.26	13.86	4	.1940	.5760	70.6	4.30	G
A-104a	1.671	.632	45,800	72,500	.050	.014	9.24	14.44	3	.2020	.430	60.5	6.69	G
A-104b	1.658	.627	55,050	88,000	.050	.014	9.24	14.40	3	.2015	.4255	60.2	6.69	G
A-105a	1.164	.440	37,440	85,000	.049	.014	9.24	11.04	2	.1546	.2854	50.4	10.03	G
A-105b	1.167	.441	35,600	80,700	.050	.014	9.25	11.06	2	.1548	.2862	50.6	10.03	J
A-106a	2.762	1.051	113,300	107,800	.050	.018	9.20	9.87	6	.1778	.8732	82.2	1.76	J
A-106b	2.760	1.047	120,100	114,800	.050	.018	9.22	9.80	6	.1765	.8705	82.1	1.76	G
A-107a	2.021	.765	74,650	97,600	.050	.018	9.22	10.05	4	.1810	.584	73.0	3.01	J
A-107b	2.024	.766	73,070	95,500	.050	.018	9.24	10.05	4	.1810	.585	72.9	3.01	J
A-108a	1.665	.6305	57,140	90,500	.050	.018	9.23	10.42	3	.1877	.4428	63.7	4.69	J
A-108b	1.658	.628	55,860	89,000	.050	.018	9.23	10.43	3	.1879	.4401	63.5	4.69	J
A-109a	1.167	.442	25,000	56,600	.050	.018	9.22	8.06	2	.1452	.2968	54.0	7.03	J
A-109b	1.153	.437	38,300	87,600	.050	.018	9.22	8.06	2	.1452	.2918	53.5	7.03	J
A-110a	1.330	.5025	39,720	89,000	.050	.018	9.25	11.55	2	.2080	.2945	43.7	10.54	G
A-110b	1.421	.536	43,900	81,900	.050	.021	9.26	11.54	2	.2420	.2940	39.9	10.54	G
A-111a	3.136	1.187	129,300	109,000	.050	.029	9.24	11.04	6	.3205	.8665	71.2	2.01	G
A-111b	3.116	1.180	131,300	111,300	.050	.029	9.23	11.01	6	.3195	.8605	71.1	2.01	J
A-112a	2.320	.879	92,900	105,700	.050	.029	9.23	10.37	4	.3010	.5780	61.5	3.12	J
A-112b	2.326	.881	87,300	99,000	.050	.029	9.23	10.38	4	.3013	.5797	61.5	3.12	J
A-113a	1.945	.735	66,390	90,000	.050	.029	9.25	10.36	3	.3005	.4345	51.5	4.68	F
A-113b	1.942	.734	68,480	93,200	.050	.029	9.22	10.36	3	.3003	.4337	51.5	4.68	F
A-114a	1.391	.525	43,650	83,000	.050	.029	9.26	8.06	2	.2340	.2910	41.6	7.03	G
A-114b	1.392	.525	47,180	90,000	.050	.029	9.26	8.07	2	.2340	.2910	41.6	7.03	G
A-115a	1.699	.641	44,820	69,700	.050	.029	9.25	11.97	2	.3475	.2935	31.5	10.93	G
A-115b	1.592	.6395	45,100	70,800	.050	.029	9.25	11.96	2	.3470	.2925	31.5	10.93	G
A-116a	3.648	1.380	181,900	131,800	.050	.048	9.24	10.38	6	.4985	.8815	62.0	1.87	J
A-116b	3.630	1.375	173,200	126,000	.050	.048	9.23	10.40	6	.4995	.8755	61.9	1.87	J
A-117a	2.757	1.045	116,400	111,400	.050	.048	9.22	9.45	4	.4540	.5910	52.2	2.81	J
A-117b	2.751	1.042	117,500	112,800	.050	.048	9.23	9.44	4	.4530	.5890	52.1	2.81	G
A-118a	2.385	.900	76,100	84,200	.050	.049	9.22	9.50	3	.4650	.4400	41.5	4.22	J
A-118b	2.377	.900	95,000	105,600	.050	.048	9.22	9.48	3	.4550	.4450	42.2	4.22	G
A-119a	2.986	1.130	65,300	57,800	.050	.048	9.24	14.14	3	.6790	.4510	32.3	6.56	J
A-119b	2.988	1.130	80,200	71,000	.050	.048	9.25	14.16	3	.6795	.4505	32.3	6.56	J
A-119Aa	2.365	.895	52,500	58,700	.050	.049	9.24	12.29	2	.6015	.2935	21.0	11.24	G
A-119Ab	2.359	.895	46,000	51,400	.050	.049	9.22	12.30	2	.6025	.2925	21.0	11.24	J

TABLE IX

[Stiffener pitch = 2.50 inches]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Percent reinforcement	Type of failure
					Stiffener (inch)	Sheet (inch)							
B-120a	0.492	0.1863	10,870	58,300	0.010	0.009	9.23	8.40	4	0.0756	0.1107	55.2	F
B-120b	.484	.1834	10,570	57,600	.010	.009	9.22	8.39	4	.0755	.1079	54.5	F
B-121a	.714	.2702	15,950	59,000	.010	.018	9.24	8.41	4	.1514	.1188	39.7	F
B-121b	.700	.2646	15,020	56,900	.010	.018	9.24	8.39	4	.1510	.1136	38.7	F
B-122a	.939	.3540	20,600	58,200	.010	.029	9.27	8.40	4	.2436	.1107	27.6	E
B-122b	.946	.3570	21,400	60,000	.010	.029	9.26	8.39	4	.2433	.1137	28.2	E
B-123a	1.380	.5215	33,100	62,400	.010	.048	9.25	8.38	4	.4020	.1195	20.0	G
B-123b	1.377	.5210	30,190	57,900	.010	.048	9.24	8.37	4	.4015	.1195	20.0	G
B-124a	.772	.2910	28,910	99,400	.020	.009	9.27	8.38	4	.0754	.2156	70.5	G
B-124b	.767	.2895	28,000	96,800	.020	.009	9.26	8.39	4	.0755	.2140	70.3	F
B-125a	.981	.3715	33,730	90,700	.020	.019	9.24	8.38	4	.1592	.2123	52.8	F
B-125b	.987	.3738	35,450	94,900	.020	.019	9.24	8.40	4	.1596	.2142	53.0	F
B-126a	1.210	.4580	42,100	92,000	.020	.029	9.23	8.38	4	.2430	.2150	42.6	F
B-126b	1.212	.4590	42,800	93,300	.020	.029	9.23	8.41	4	.2440	.2150	42.6	F
B-127a	1.666	.6285	62,550	99,700	.020	.048	9.26	8.38	4	.4020	.2265	32.1	A
B-127b	1.647	.6230	61,740	99,100	.020	.048	9.24	8.38	4	.4020	.2210	31.5	A
B-128a	1.049	.3975	43,020	108,300	.030	.009	9.22	8.39	4	.0755	.3220	78.2	B
B-128b	1.049	.3970	41,100	103,600	.030	.009	9.24	8.38	4	.0754	.3216	78.1	B
B-129a	1.254	.4730	48,820	103,300	.030	.018	9.27	8.38	4	.1508	.3222	64.2	F
B-129b	1.261	.4750	50,770	107,000	.030	.018	9.28	8.30	4	.1510	.3240	64.3	F
B-130a	1.496	.5665	56,800	100,200	.030	.029	9.23	8.38	4	.2[illegible]30	.3235	52.7	E
B-130b	1.482	.5616	59,900	106,500	.030	.029	9.23	8.37	4	.2427	.3188	52.4	E
B-131a	1.943	.7350	53,000	72,100	.030	.048	9.25	8.38	4	.4020	.3330	41.0	J
B-131b	1.932	.7370	77,230	105,100	.030	.048	9.18	8.38	4	.4020	.3350	41.1	J
B-132a	1.772	.6710	60,490	89,500	.050	.011	9.24	8.51	4	.0936	.5774	84.1	J
B-132b	1.745	.6600	74,700	114,000	.050	.010	9.25	8.50	4	.0850	.5750	85.1	F
B-133a	2.011	.7610	75,250	98,700	.050	.021	9.25	8.47	4	.1780	.5830	73.6	F
B-133b	2.017	.7605	77,330	101,800	.050	.021	9.27	8.50	4	.1785	.5820	73.5	F
B-134a	2.214	.8360	86,600	103,600	.050	.031	9.26	8.47	4	.2625	.5735	64.8	J
B-134b	2.158	.8175	85,770	105,000	.049	.029	9.24	8.52	4	.2470	.5705	66.3	J
B-135a	2.638	.9950	107,400	108,000	.049	.049	9.26	8.55	4	.4190	.5760	54.0	G
B-135b	2.678	1.0110	106,800	105,700	.050	.050	9.26	8.54	4	.4265	.5845	53.9	G

TABLE X

Specification no.	Weight (pounds)	Area (square inch)	Failing load (lbs.)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener pitch (inches)	Percent reinforcement	Type of failure
					Stiffener (inch)	Sheet (inch)								
C-136a	0.178	0.1700	7,010	41,200	0.010	0.009	3.66	12.05	2	0.1084	0.0616	11.16	23.5	A
C-136b	.175	.1656			.010	.009	3.70	12.04	2	.1083	.0573	11.16	22.3	
C-5a	.440	.1663	5,870	35,390	.010	.009	9.25	12.07	2	.1086	.0577	11.16	22.4	F
C-5b	.442	.1670	5,920	35,400	.010	.009	9.26	12.07	2	.10[illegible]6	.0584	11.16	22.5	F
C-138a	.668	.1683	(1)	(1)	.010	.009	13.88	12.04	2	.1083	.0600	11.16	23.0	
C-138b	.671	.1692			.010	.009	13.88	12.09	2	.1088	.0604	11.16	23.2	
C-139a	.896	.1694	4,000	23,600	.010	.010	18.51	12.04	2	.1204	.0490	11.16	18.0	G
C-139b	.891	.1684	(1)	(1)	.010	.010	18.50	12.04	2	.1204	.0480	11.16	17.7	
C-140a	.131	.1245	6,900	55,400	.010	.009	3.68	7.40	2	.0665	.0580	6.51	33.1	A
C-140b	.128	.1217	6,940	57,100	.010	.009	3.68	7.40	2	.0665	.0552	6.51	32.0	A
C-141a	.230	.1241	5,760	46,400	.010	.009	6.48	7.44	2	.0669	.0572	6.51	32.8	F
C-141b	.227	.1226	5,430	44,400	.010	.009	6.48	7.42	2	.0667	.0559	6.51	32.3	F
C-4a	.328	.1238	5,610	45,300	.010	.009	9.26	7.40	2	.0666	.0572	6.51	32.8	F
C-4b	.318	.1200	5,370	44,800	.010	.009	9.25	7.42	2	.0666	.0534	6.51	31.2	F
C-142a	.494	.1247	5,250	42,100	.010	.009	13.85	7.40	2	.0666	.0581	6.51	33.2	G
C-142b	.495	.1250	5,000	40,000	.010	.009	13.84	7.40	2	.0666	.0584	6.51	33.3	G
C-143a	.649	.1228	(1)	(1)	.010	.009	18.47	7.41	2	.0667	.0561	6.51	32.4	
C-143b	.648	.1227	(1)	(1)	.010	.009	18.46	7.39	2	.0665	.0562	6.51	32.4	
C-144a	.189	.1804	10,210	56,500	.010	.009	3 66	9.28	3	.0835	.0969	4.19	46.1	A
C-144b	.181	.1720	10,020	59,300	.010	.009	3.68	9.27	3	0834	.0886	4.19	43.9	A
C-145a	.313	.1698	8,950	52,700	.010	.009	6.45	9.26	3	.0833	.0865	4.19	43.3	A
C-145b	.311	.1687	9,370	55,600	.010	.009	6.45	9.26	3	.0833	.0854	4.19	43.0	A
C-3a	.464	.1754	9,200	52,400	.010	.009	9.25	9.24	3	.0831	.0923	4.19	44.9	H
C-3b	.451	.1700	8,700	51,200	.010	.009	9.27	9.28	3	.0835	.0865	4.19	43.3	H
C-146a	.680	.1713			.010	.009	13.86	9.27	3	.0834	.0879	4.19	43.7	
C-146b	.677	.1709	7,170	42,000	.010	.009	13.86	9.26	3	.0833	.0876	4.19	43.7	G
C-147a	.902	.1703	6,380	37,500	.010	.009	18.49	9.26	3	.0833	.0870	4.19	43.5	G
C-147b	.901	.1703	6,650	39,000	.010	.009	18.47	9.27	3	.0834	.0869	4.19	43.5	G
C-148a	.338	.3210	14,210	44,300	.010	.019	3.68	12.04	3	.2290	.0920	5.58	22.4	A
C-148b	.338	.3210	14,670	45,600	.010	.019	3.68	12 04	3	.2200	.0920	5.58	22.4	A
C-149a	.637	.3443	14,650	42,600	.010	.021	6.46	12.04	3	.2530	.0913	5.58	20.6	A
C-149b	.639	.3470	14,600	42,100	.010	.021	6.44	12.04	3	.2530	.0940	5.58	21.1	A
C-14a	.809	.3060	12,570	51,100	.010	.018	9.23	12.07	3	.2175	.0885	5.58	22.7	H
C-14b	.818	.3100	12,030	38,800	.010	.018	9.22	12.04	3	.2170	.0930	5.58	23.6	A
C-150a	1.367	.3445	12,160	35,300	.010	.021	13.85	12.10	3	.2540	.0905	5.58	20.5	J
C-150b	1.367	.3460	11,900	34,400	.010	.021	13.80	12.10	3	.2540	.0920	5.58	20.7	B
C-151a	1.812	.3420	11,650	34,050	.010	.021	18.50	12.10	3	.2540	.0880	5.58	25.0	F
C-151b	1.833	.3465	10,420	30,100	.010	.022	18.48	12.02	3	.2523	.0942	5.58	20.4	F
C-152a	.334	.3170	17,290	54,400	.010	.019	3.68	10.66	4	.2023	.1147	3.26	31.6	F
C-152b	.331	.3145	16,790	53,250	.010	.019	3.66	10.66	4	.2023	.1122	3.26	31.2	F
C-153a	.597	.3230	17,260	53,480	.010	.020	6.46	10.66	4	.2132	.1098	3.26	29.7	F
C-153b	.595	.3220	15,210	47,150	.010	020	6.46	10.67	4	.213[illegible]	.1086	3.26	29.5	F
C-13a	.842	.3180	16,940	53,400	.010	.018	9.25	10.66	4	.1920	.1260	3.26	34.9	F
C-13b	.818	.3090	16,240	52,600	.010	.018	9.25	10.67	4	.1920	.1170	3.26	33.3	F
C-154a	1.283	.3240	15,950	49,250	.010	.019	13.84	10.67	4	.2025	.1215	3.26	32.9	G
C-154b	1.283	.3233	16,125	49,800	.010	.019	13.87	10.66	4	.2023	.1212	3.26	32.9	G
C-155a	1.704	.3237	13,530	41,700	.010	.019	18.41	10.68	4	.2027	.1210	3.26	32.9	G
C-155b	1.710	.3240	10,880	33,600	.010	.019	18.44	10.66	4	.2023	.1217	3.26	32.9	G
C-156a	.330	.3140	20,240	64,600	.010	.019	3.67	9.29	5	.1765	.1375	2.10	40.8	A
C-156b	.332	.3155	19,540	62,000	.010	.019	3.68	9.29	5	.1765	.1390	2.10	41.1	A
C-157a	.582	.3165	19,790	62,500	.010	.019	6.44	9.28	5	.1763	.1402	2.10	41.2	A
C-157b	.585	.3180	19,150	60,200	.010	.019	6.44	9.28	5	.1763	.1417	2.10	41.5	A
C-158a	1.251	.3157	16,460	52,150	.010	.019	13.85	9.27	5	.1761	.1396	2.10	40.4	F
C-158b	1.245	.3140	17,150	54,600	.010	.018	13.85	9.28	5	.1669	.1471	2.10	43.7	G
C-159a	1.679	.3180	16,190	50,900	.010	.018	18.46	9.26	5	.1668	.1512	2.10	44.4	G
C-159b	1.675	.3175	14,310	45,100	.010	.018	18.46	9.25	5	.1665	.1510	2.10	44.4	G
C-160a	.475	.4510	21,910	48,600	.010	.028	3.68	12.03	4	.3370	.1140	3.72	21.5	H
C-160b	.481	.4570	21,840	47,800	.010	.028	3.68	12.04	4	.3373	.1197	3.72	22.3	H
C-161a	.832	.4510	21,650	48,000	.010	.028	6.45	12.05	4	.3375	.1135	3.72	21.4	A
C-161b	.834	.4510	21,140	46,600	.010	.028	6.45	12.04	4	.3373	.1135	3.72	21.4	A
C-18a	1.220	.4620	23,600	51,100	.010	.028	9.23	12.06	4	.3380	.1240	3.72	22.9	E
C-18b	1.228	.4640	20,700	44,600	.010	.029	9.25	12.05	4	.3500	.1140	3.72	20.9	E
C-162a	1.798	.4540	17,380	38,300	.010	.028	13.85	12.04	4	.3373	.1167	3.72	21.9	A
C-162b	1.800	.4545	19,700	43,400	.010	.028	13.86	12.04	4	.3373	.1172	3.72	21.9	G
C-163a	2.402	.4540	16,390	36,100	.010	.028	18.50	12.04	4	.3375	.1165	3.72	21.8	G
C-163b	2.386	.4545	13,675	30,100	.010	.028	18.38	12.04	4	.3375	.1170	3.72	21.9	G
C-164a	.435	.4130	25,620	62,000	.010	.028	3.68	9.56	5	.2680	.1450	2.17	32.3	H
C-164b	.438	.4150	25,850	62,300	.010	.028	3.68	9.56	5	.2680	.1470	2.17	32.6	H
C-165a	.756	.4110	25,510	62,000	.010	.028	6.44	9.57	5	.2680	.1430	2.17	32.0	H
C-165b	.745	.405	18,860	46,600	.010	.028	6.43	9.57	5	.2680	.1370	2.17	31.0	E
C-17a	1.113	.4205	31,230	74,200	.010	.029	9.24	9.57	5	.2775	.1430	2.17	31.2	E
C-17b	1.117	.4220	29,900	70,800	.010	.029	9.25	9.56	5	.2770	.1450	2.17	31.5	E
C-166a	1.641	.4145	23,210	56,000	.010	.028	13.86	9.56	5	.2680	.1465	2.17	32.5	G
C-166b	1.742	.4145	23,775	57,400	.010	.031	13.87	9.61	5	.2980	.1165	2.17	25.7	G
C-167a	2.137	.4060	18,620	45,900	.010	.028	18.37	9.57	5	.2680	.1380	2.17	31.2	G
C-167b	2.181	.4140	19,450	47,000	.010	.028	18.44	9.57	5	.2680	.1460	2.17	32.4	G
C-168a	.500	.4760	35,280	74,150	.010	.029	3.67	9.28	7	.2690	.2070	1.40	42.1	F
C-168b	.500	.4760	35,680	75,000	.010	.029	3.67	9.28	7	.2690	.2070	1.40	42.1	E
C-169a	.868	.4700	36,000	76,600	.010	.029	6.45	9.28	7	.2690	.2010	1.40	41.4	A
C-169b	.862	.4690	35,410	75,550	.010	.030	6.44	9.29	7	.2787	.1903	1.40	39.3	E
C-16a	1.265	.4775	35,900	75,200	.010	.028	9.26	9.28	7	.2597	.2178	1.40	44.2	A
C-16b	1.242	.4705	37,150	78,900	.010	.028	9.23	9.28	7	.2597	.2108	1.40	43.5	A
C-170a	1.872	.4725	34,350	72,600	.010	.029	13.84	9.30	7	2697	.2028	1.40	41.7	G
C-170b	1.876	.4730			.010	.029	13.85	9.29	7	.2695	.2035	1.40	41.7	
C-171a	2.481	.4700			.010	.029	18.47	9.29	7	.2695	.2005	1.40	41.3	
C-171b	2.484	.4705	28,200	59,900	.010	.029	18.48	9.29	7	.2695	.2010	1.40	41.4	G
C-172a	.201	.1895	16,600	87,700	.020	.009	3.71	9.30	2	.0836	.1059	8.40	41.2	F
C-172b	.202	.1910	16,500	86,500	.020	.009	3.70	9.29	2	.0835	.1075	8.40	41.5	F
C-173a	.357	.1928	15,480	80,400	.020	.009	6.48	9.28	2	.0835	.1093	8.40	42.0	F
C-173b	.354	.1912	14,800	77,500	.020	.009	6.47	9.32	2	.0839	.1073	8.40	41.5	G
C-53a	.512	.1934	14,400	74,500	.020	.009	9.26	9.30	2	.0837	.1097	8.40	42.0	E
C-53b	.509	.1920	12,900	67,100	.020	.009	9.26	9.30	2	.0837	.1083	8.40	41.8	E

[1] Too flimsy.

TABLE X—Continued

Specification no.	Weight (pounds)	Area (square inch)	Failing load (lbs.)	Failing stress (lb./sq. in.)	Thickness: Stiffener (inch)	Thickness: Sheet (inch)	Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener pitch (inches)	Percent reinforcement	Type of failure
C-174a	0.769	0.1938	--------	--------	0.020	0.009	13.86	9.28	2	0.0835	0.1103	8.40	42.1	--------
C-174b	.765	.1929	--------	--------	.020	.009	13.86	9.28	2	.0835	.1094	8.40	42.0	--------
C-175a	1.055	.1999	8,725	43,600	.020	.010	18.46	9.30	2	.0930	.1069	8.40	38.9	G
C-175b	1.058	.2003	9,450	47,150	.020	.010	18.51	9.31	2	.0931	.1072	8.40	39.0	G
C-176a	.288	.2745	24,470	89,000	.020	.009	3.67	12.09	3	.1088	.1657	5.60	52.3	F
C-176b	.288	.2730	24,000	88,000	.020	.009	3.69	12.08	3	.1088	.1642	5.60	52.1	F
C-177a	.505	.2730	23,230	86,000	.020	.009	6.46	12.10	3	.1089	.1641	5.60	52.1	F
C-177b	.505	.2740	23,620	86,250	.020	.009	6.45	12.10	3	.1089	.1651	5.60	52.1	F
C-52a	.720	.2735	20,930	76,500	.020	.009	9.20	12.10	3	.1090	.1645	5.60	52.1	E
C-52b	.720	.2725	21,000	77,100	.020	.009	9.24	12.10	3	.1090	.1635	5.60	52.0	E
C-178a	1.110	.2797	17,110	61,300	.020	.010	13.88	12.10	3	.1210	.1587	5.60	48.6	G
C-178b	1.109	.2795	17,530	62,700	.020	.009	13.79	12.04	3	.1084	.1711	5.60	53.0	G
C-179a	1.438	.2725	14,760	54,100	.020	.009	18.46	12.09	3	.1088	.1637	5.60	52.0	G
C-179b	1.438	.2720	12,410	45,650	.020	.009	18.48	12.08	3	.1088	.1632	5.60	51.9	G
C-180a	.350	.3320	32,260	97,200	.020	.009	3.68	12.07	4	.1086	.2234	3.73	62.5	F
C-180b	.340	.3245	31,800	98,000	.020	.009	3.66	12.07	4	.1086	.2159	3.73	61.6	F
C-181a	.603	.3275	30,120	92,000	.020	.009	6.44	12.10	4	.1090	.2185	3.73	61.9	F
C-181b	.606	.3295	28,540	86,500	.020	.009	6.44	12.08	4	.1088	.2207	3.73	62.2	J
C-51a	.886	.3350	20,900	62,400	.020	.010	9.24	12.18	4	.1218	.2132	3.73	58.8	J
C-51b	.877	.3325	28,220	84,900	.020	.010	9.22	12.10	4	.1210	.2115	3.73	58.3	E
C-182a	1.284	.3245	23,650	72,900	.020	.010	13.84	12.08	4	.1208	.2037	3.73	57.6	G
C-182b	1.332	.3360	22,920	68,150	.020	.010	13.85	12.07	4	.1207	.2153	3.73	59.0	G
C-183a	1.763	.3340	18,320	54,800	.020	.009	18.44	12.08	4	.1087	.2253	3.73	62.6	G
C-183b	1.755	.3320	17,130	51,600	.020	.009	18.48	12.12	4	.1091	.2229	3.73	62.5	G
C-184a	.354	.3410	26,950	79,000	.020	.018	3.63	9.28	3	.1671	.1739	4.20	43.4	F
C-184b	.352	.3340	27,050	81,000	.020	.019	3.68	9.29	3	.1765	.1575	4.20	39.6	F
C-185a	.615	.3330	25,920	77,900	.020	.018	6.46	9.27	3	.1670	.1660	4.20	42.2	F
C-185b	.615	.3335	26,280	78,900	.020	.018	6.45	9.27	3	.1670	.1665	4.20	42.3	F
C-61a	.891	.3370	25,000	74,300	.020	.019	9.24	9.28	3	.1762	.1608	4.20	42.4	H
C-61b	.880	.3330	24,650	77,000	.020	.018	9.24	9.28	3	.1670	.1660	4.20	42.4	H
C-186a	1.332	.3360	21,810	65,000	.020	.018	13.86	9.32	3	.1678	.1682	4.20	42.5	G
C-186b	1.328	.3350	19,870	59,500	.020	.018	13.85	9.31	3	.1676	.1674	4.20	42.4	G
C-186c	1.324	.3340	16,270	48,700	.020	.018	13.85	9.30	3	.1674	.1666	4.20	42.3	J
C-187a	1.750	.3315	16,270	49,100	.020	.018	18.45	9.29	3	.1672	.1643	4.20	41.5	G
C-187b	1.764	.3340	16,040	48,000	.020	.019	18.48	9.29	3	.1765	.1575	4.20	39.6	G
C-188a	.408	.3380	36,260	93,500	.020	.019	3.68	9.28	4	.1762	.2118	2.80	49.9	H
C-188b	.415	.3950	36,710	92,850	.020	.019	3.67	9.28	4	.1762	.2188	2.80	50.7	F
C-189a	.706	.3845	33,500	87,000	.020	.018	6.42	9.31	4	.1677	.2168	2.80	51.9	F
C-189b	.708	.3840	33,820	88,100	.020	.018	6.44	9.29	4	.1672	.2168	2.80	51.9	F
C-60a	1.034	.2000	29,450	75,500	.020	.019	9.26	9.30	4	.1767	.2133	2.80	50.0	H
C-60b	1.025	.3860	33,500	86,800	.020	.019	9.26	9.29	4	.1764	.2096	2.80	49.7	H
C-190a	1.539	.3880	29,780	76,800	.020	.018	13.87	9.28	4	.1671	.2209	2.80	52.3	G
C-190b	1.541	.3895	27,270	70,100	.020	.019	13.83	9.28	4	.1763	.2132	2.80	50.0	G
C-191a	2.051	.3870	24,420	63,100	.020	.018	18.51	9.30	4	.1673	.2197	2.80	52.1	G
C-191b	2 056	.3880	25,270	65,200	.020	.018	18.50	9.29	4	.1671	.2209	2.80	52.3	G
C-192a	.561	.3510	55,000	103,600	.020	.020	3.69	10.23	6	.2046	.3264	1.87	59.3	H
C-192b	.545	.5340	54,930	102,900	.020	.019	3.57	10.25	6	.1047	.3393	1.87	61.5	H
C-193a	.972	.5260	51,940	98,800	.020	.020	6.45	10.23	6	.2046	.3214	1.87	58.9	F
C-193b	.977	.5300	53,890	101,600	.020	.020	6.45	10.24	6	.2048	.3252	1.87	59.2	F
C-59a	1.365	.5170	45,300	87,600	.020	.018	9.23	10.26	6	.1847	.3323	1.87	62.3	J
C-59b	1.333	.5110	51,690	101,200	.020	.018	9.25	10.27	6	.1849	.3261	1.87	61.8	H
C-194a	2.066	.5210	43,860	84,200	.020	.019	13.86	10.22	6	.1941	.3269	1.87	60.6	G
C-194b	2.063	.5205	40,950	78,500	.020	.019	13.85	10.22	6	.1941	.3264	1.87	60.6	G
C-195a	2.747	.5200	34,690	66,800	.020	.019	18.45	10.24	6	.1948	.3252	1.87	60.5	G
C-195b	2.757	.5220	32,350	61,900	.020	.020	18.46	10.20	6	.2040	.3180	1.87	58.6	G
C-196a	.512	.4860	41,740	92,000	.020	.029	3.68	9.29	4	.2694	.2166	2.80	40.0	H
C-196b	.511	.4850	44,730	92,250	.020	.029	3.68	9.28	4	.2690	.2160	2.80	40.0	H
C-197a	.896	.4850	41,070	84,800	.020	.029	6.46	9.32	4	.2700	.2150	2.80	39.8	D
C-197b	.901	.4860	42,450	87,300	.020	.029	6.47	9.31	4	.2700	.2160	2.80	40.0	D
C-66a	1.281	.4850	44,310	91,500	.020	.029	9.23	9.28	4	.2690	.2160	2.80	40.0	J
C-66a	1.279	.4840	43,210	89,600	.020	.029	9.24	9.28	4	.2690	.2150	2.80	39.9	J
C-198a	1.928	.4860	34,030	70,000	.020	.029	13.86	9.29	4	.2694	.2166	2.80	40.0	G
C-198b	1.930	.4865	35,380	72,700	.020	.029	13.86	9.29	4	.2694	.2171	2.80	40.0	G
C-199a	2.559	.4845	26,210	54,100	.020	.029	18.46	9.28	4	.2690	.2155	2.80	39.9	G
C-199b	2.571	.4855	26,490	54,500	.020	.029	18.49	9.30	4	.2696	.2159	2.80	40.0	G
C-200a	.634	.6120	65,200	106,500	.020	.028	3.62	10.24	6	.2870	.3250	1.87	50.9	H
C-200b	.687	.6640	75,180	113,400	.020	.029	3.62	10.24	6	.2975	.3665	1.87	53.0	H
C-201a	1.128	.6110	60,190	98,500	020	.028	6.48	10.24	6	.2870	.3240	1.87	50.7	H
C-201b	1.130	.6105	61,380	100,500	.020	.029	6.46	10.25	6	.2975	.3130	1.87	49.0	H
C-65a	1.642	.623	67,500	108,300	.020	.029	9.22	10.22	6	.2965	.3265	1.87	50.0	J
C-65b	1.642	.623	81,090	98,200	.020	.029	9.22	10.24	6	.2975	.3255	1.87	50.0	F
B-202a	2.422	.6110	47,000	76,900	.020	.028	13.84	10.25	6	.2870	.3240	1.87	50.7	J
C-202b	2.418	.6100	--------	--------	.020	.028	13.84	10.26	6	.2873	.3227	1.87	50.7	G
C-203a	3.230	.6105	39,400	64,500	.020	.028	18.47	10.22	6	.2860	.3245	1.87	50.8	G
C-203b	3.230	.6110	40,200	65,900	.020	.028	18.45	10.24	6	.2870	.3240	1.87	50.7	G
C-204a	.739	.704	84,660	120,000	.020	.028	3.67	9.57	8	.2680	.4360	1.24	61.1	D
C-204b	.725	.695	80,830	116,000	.020	.028	3.64	9.57	8	.268	.4270	1.24	60.6	D
C-205a	1.290	.700	85,370	121,900	.020	.028	6.44	9.56	8	.268	.4320	1.24	60.8	D
C-205b	2.290	.698	84,740	121,500	.020	.028	6.46	9.56	8	.268	.4300	1.24	60.8	F
C-64a	1.876	.710	82,650	116,300	.020	.029	9.23	9.56	8	.2775	.4325	1.24	60.0	J
C-64b	1.858	.7045	36,000	51,100	.020	.029	9.23	9.56	8	.2775	.4270	1.24	59.7	J
C-206a	2.766	.6990	40,000	57,200	.020	.028	13.85	9.56	8	.2680	.4310	1.24	60.9	J
C-206b	2.865	.7305	62,090	85,000	.020	.031	13.72	9.58	8	.2970	.4335	1.24	58.5	G
C-207a	3.685	.6980	38,000	54,400	.020	.028	18.47	9.57	8	.2680	.4300	1.24	60.7	J
C-207b	3.691	.6960	46,625	66,800	.020	.028	18.48	9.58	8	.2682	.4298	1.24	60.8	G
C-208a	.298	.2805	21,000	74,900	.031	.009	3.71	13.55	2	.1220	.1585	12.65	41.0	F
C-208b	.322	.3025	12,750	139,200	.031	.010	3.72	13.55	2	.1355	.1670	12.65	39.8	--------
C-209a	.567	.3060	22,440	73,500	.030	.011	6.47	13.54	2	.1490	.1570	12.65	36.0	F
C-209b	.565	.3050	--------	--------	.030	.011	6.47	13.52	2	.1488	.1562	12.65	35.9	--------
C-78a	.760	.2880	20,700	71,900	.030	.009	9.22	13.56	2	.1220	.1660	12.65	42.1	F
C-78b	.760	.2875	20,250	70,500	.030	.009	9.24	13.55	2	.1220	.1665	12.65	42.2	F
C-210a	1.129	.2845	--------	--------	030	.009	13.86	13.55	2	.1220	.1625	12.65	41.6	--------

TABLE X—Continued

Specification no.	Weight (pounds)	Area (square inch)	Failing load (lbs.)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener pitch (inches)	Percent reinforcement	Type of failure
					Stiffener (inch)	Sheet (inch)								
C-210b	1.133	0.2860	-------	-------	0.030	0.009	13.87	13.53	2	0.1218	0.1642	12.65	41.9	-------
C-211a	1.500	.2835	-------	-------	.031	.009	18.50	13.54	2	.1220	.1615	12.65	41.5	-------
C-211b	1.498	.2830	-------	-------	.031	.009	18.51	13.54	2	.1220	.1610	12.65	41.4	-------
C-212a	.259	.246	25,680	104,400	.031	.009	3.68	9.32	2	.0839	.1621	8.43	51.7	A
C-212b	.257	.244	26,120	107,000	.031	.009	3.68	9.33	2	.0840	.1600	8.43	51.3	H
C-213a	.451	.2435	24,110	98,500	.030	.009	6.48	9.30	2	.0837	.1598	8.43	51.3	G
C-213b	.458	.2475	23,310	94,100	.030	.009	6.46	9.34	2	.0840	.1635	8.43	51.9	G
C-77b	.648	.2455	20,200	82,300	.030	.009	9.24	9.27	2	.0834	.1621	8.43	51.6	F
C-214a	.989	.2493	15,910	63,800	.030	.009	13.86	9.32	2	.0839	.1654	8.43	52.2	G
C-214b	.978	.2463	17,320	70,300	.030	.009	13.86	9.33	2	.0840	.1623	8.43	51.7	G
C-215a	1.324	.2500	10,900	44,000	.030	.009	18.51	9.34	2	.0841	.1659	8.43	52.2	G
C-215b	1.304	.2466	11,450	46,400	.030	.009	18.48	9.31	2	.0838	.1628	8.43	51.7	G
C-216a	.377	.3560	39,600	111,300	.030	.009	3.70	12.12	3	.1091	.2469	5.62	61.9	F
C-216b	.370	.3525	39,390	111,400	.030	.009	3.67	12.14	3	.1093	.2432	5.62	61.6	F
C-217a	.655	.3540	36,470	103,200	.030	.009	6.47	12.12	3	.1092	.2448	5.62	61.7	F
C-217b	.647	.3505	34,700	99,000	.030	.009	6.45	12.12	3	.1092	.2413	5.62	61.4	F
C-76a	.932	.3515	29,700	84,500	.030	.009	9.26	12.12	3	.1091	.2424	5.62	61.5	F
C-76b	.942	.3565	29,200	81,900	.030	.009	9.24	12.12	3	.1091	.2474	5.62	62.0	F
C-218a	1.409	.3535	22,610	63,900	.030	.009	13.92	12.12	3	.1091	.2444	5.62	61.7	G
C-218b	1.409	.3537	23,350	66,000	.030	.009	13.91	12.11	3	.1090	.2447	5.62	61.7	G
C-219a	1.955	.3710	18,775	50,600	.030	.011	18.41	12.10	3	.1330	.2380	5.62	56.1	G
C-219b	1.966	.3720	20,580	66,300	.030	.011	18.45	12.05	3	.1326	.2394	5.62	56.2	G
C-220a	.529	.5015	42,540	84,800	.030	.019	3.68	13.54	3	.2575	.2440	6.33	40.4	F
C-220b	.534	.5060	42,830	84,500	.030	.019	3.68	13.54	3	.2575	.2485	6.33	40.8	H
C-221a	.926	.5010	38,740	77,200	.030	.019	6.46	13.55	3	.2575	.2435	6.33	40.3	F
C-221b	.931	.5030	39,300	78,000	.031	.019	6.46	13.55	3	.2575	.2455	6.33	40.5	F
C-86a	1.311	.4955	33,250	67,100	.030	.018	9.24	13.55	3	.2440	.2515	6.33	42.3	B
C-86b	1.299	.4900	32,770	66,900	.030	.018	9.25	13.55	3	.2440	.2460	6.33	41.9	B
C-222a	2.107	.5320	29,240	55,000	.030	.021	13.84	13.56	3	.2845	.2475	6.33	38.3	G
C-222b	2.114	.5345	30,720	57,500	.030	.021	13.83	13.58	3	.2850	.2495	6.33	38.5	G
C-223a	2.676	.5035	23,240	45,900	.030	.020	18.46	13.56	3	.2712	.2353	6.33	38.2	G
C-223b	2.676	.5055	22,790	45,100	.030	.020	18.49	13.55	3	.2710	.2345	6.33	38.2	G
C-224a	.432	.4100	43,170	105,200	.030	.018	3.68	9.32	3	.1678	.2422	4.22	51.5	F
C-224b	.438	.4155	42,930	103,250	.030	.018	3.68	9.32	3	.1678	.2477	4.22	52.1	F
C-225a	.761	.4130	36,960	89,500	.031	.019	6.45	9.35	3	.1776	.2354	4.22	49.5	F
C-225b	.760	.4110	38,520	93,600	.031	.019	6.46	9.34	3	.1773	.2336	4.22	49.2	F
C-85a	1.100	.4170	36,250	86,900	.030	.019	9.22	9.31	3	.1770	.2400	4.22	49.9	B
C-85b	1.085	.4110	36,200	88,000	.030	.018	9.22	9.33	3	.1680	.2430	4.22	51.5	B
C-226a	1.649	.4160	26,820	64,400	.030	.018	13.85	9.33	3	.1678	.2482	4.22	52.1	G
C-226b	1.663	.4200	29,670	70,600	.030	.018	13.86	9.34	3	.1680	.2520	4.22	52.5	G
C-227a	2.199	.4150	21,860	52,700	.030	.018	18.53	9.33	3	.1678	.2472	4.22	52.0	G
C-227b	2.182	.4140	21,440	51,800	.030	.018	18.43	9.32	3	.1677	.2463	4.22	51.8	G
C-228a	.510	.4900	55,200	112,700	.030	.018	3.64	9.34	4	.1680	.3220	2.81	61.4	F
C-228b	.514	.4915	57,030	116,000	.030	.018	3.65	9.31	4	.1676	.3239	2.81	61.5	H
C-229a	.907	.4900	49,800	101,700	.030	.018	6.46	9.32	4	.1773	.3127	2.81	59.5	F
C-229b	.906	.4930	53,840	109,300	.030	.018	6.43	9.32	4	.1677	.3253	2.81	61.6	F
C-84a	1.309	.4950	46,440	93,900	.030	.019	9.24	9.32	4	.1771	.3179	2.81	59.8	B
C-84b	1.309	.4950	48,920	98,800	.030	.019	9.24	9.33	4	.1772	.3178	2.81	59.8	B
C-230a	1.942	.4895	40,410	82,500	.030	.018	13.87	9.34	4	.1680	.3215	2.81	61.4	G
C-230b	1.941	.4900	39,440	80,400	.030	.018	13.85	9.31	4	.1676	.3224	2.81	61.5	G
C-231a	2.604	.4930	29,560	59,900	.030	.018	18.48	9.33	4	.1678	.3252	2.81	61.6	G
C-231b	2.612	.4950	29,960	60,500	.030	.018	18.44	9.34	4	.1680	.3270	2.81	61.7	G
C-232a	.534	.515	48,690	96,400	.030	.029	3.62	9.32	3	.2700	.2450	4.22	40.0	F
C-232b	.534	.513	49,050	95,600	.030	.029	3.64	9.32	3	.2700	.2430	4.22	39.8	F
C-233a	.939	.509	46,180	90,500	.030	.029	6.45	9.32	3	.2700	.2390	4.22	39.4	F
C-233b	.947	.512	44,900	87,600	.030	.029	6.46	9.34	3	.2705	.2415	4.22	39.6	F
C-91a	1.355	.512	44,150	86,200	.031	.029	9.25	9.32	3	.2705	.2415	4.22	39.6	H
C-91b	1.347	.5110	45,000	88,000	.031	.029	9.21	9.34	3	.2707	.2403	4.22	39.6	H
C-234a	2.036	.5130	25,000	48,750	.030	.029	13.87	9.34	3	.2706	.2424	4.22	39.8	G
C-234b	2.034	.5135	33,510	65,300	.030	.029	13.86	9.32	3	.2703	.2432	4.22	39.9	G
C-235a	2.719	.5150	26,600	51,650	.030	.029	18.46	9.34	3	.2706	.2444	4.22	39.9	G
C-235b	2.714	.5145	25,680	50,000	.030	.029	18.46	9.34	3	.2706	.2439	4.22	39.9	G
C-236a	.626	.5980	65,390	109,300	.030	.029	3.66	9.31	4	.2700	.3280	2.81	50.1	F
C-236b	.622	.5975	65,740	110,000	.030	.030	3.64	9.31	4	.2793	.3182	2.81	48.5	H
C-237a	1.086	.5900	56,450	95,600	.030	.029	6.44	9.33	4	.2705	.3195	2.81	49.5	F
C-237b	1.091	.5910	60,300	102,000	.030	.029	6.45	9.33	4	.2705	.3205	2.81	49.6	F
C-90a	1.563	.5920	56,500	95,500	.030	.029	9.22	9.30	4	.2695	.3225	2.81	49.8	H
C-90b	1.552	.5880	55,300	94,100	.030	.029	9.23	9.32	4	.2705	.3175	2.81	49.4	H
C-238a	2.343	.5900	41,080	69,600	.030	.029	13.88	9.32	4	.2703	.3197	2.81	49.6	G
C-238b	2.342	.5910	46,420	78,500	.030	.029	13.85	9.34	4	.2706	.3204	2.81	49.6	G
C-239a	3.128	.4935	35,810	60,350	.030	.029	18.45	9.31	4	.2700	.3235	2.81	49.8	G
C-239b	3.129	.5925	35,300	59,500	.030	.029	18.46	9.32	4	.2703	.3222	2.81	49.7	G
C-240a	.802	.770	92,400	120,000	.031	.028	3.64	10.24	6	.2870	.4830	1.87	60.6	H
C-240b	.814	.7725	89,100	115,300	.031	.028	3.68	10.24	6	.2870	.4855	1.87	60.6	H
C-241a	1.425	.7725	92,000	119,100	.030	.028	6.45	10.24	6	.2870	.4855	1.87	60.6	H
C-241b	1.420	.7690	91,700	119,200	.030	.028	6.46	10.25	6	.2870	.4820	1.87	60.5	F
C-89a	2.047	.7750	86,100	111,000	.031	.029	9.22	10.22	6	.2965	.4785	1.87	59.5	H
C-89b	2.058	.7785	84,900	109,000	.030	.029	9.24	10.26	6	.2975	.4810	1.87	59.5	H
C-242a	3.025	.7650	67,200	87,900	.030	.028	13.83	10.21	6	.2860	.4790	1.87	60.4	G
C-242b	3.022	.7650	63,420	82,900	.030	.028	13.82	10.22	6	.2860	.4790	1.87	60.4	J
C-243a	4.064	.7690	48,250	62,800	.030	.028	18.49	10.23	6	.2865	.4825	1.87	60.5	G
C-243b	4.067	.7710	52,510	68,000	.030	.028	18.44	10.24	6	.2870	.4840	1.87	60.6	G

TABLE XI.—*Stiffeners without sheet attached*

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness of stiffener (inch)	Length (inches)	L/ρ
D-244a	0.030	0.0283	2,650	93,700	0.011	3.70	18.5
D-244b	.029	.0274	2,420	88,400	.011	3.70	18.5
D-245a	.051	.0276	1,660	60,100	.011	6.46	32.2
D-245b	.051	.0276	1,980	71,700	.011	6.46	32.2
D-246a	.073	.0276	1,200	43,500	.011	9.24	46.0
D-246b	.073	.0276	1,420	51,400	.010	9.25	46.1
D-247a	.110	.0288	835	29,000	.010	13.87	69.2
D-247b	.110	.0288	900	31,200	.010	13.87	69.2
D-248a	.155	.0292	550	18,800	.010	18.50	92.2
D-248b	.151	.0285	550	19,300	.010	18.50	92.2
D-249a	.043	.0406	3,800	93,500	.015	3.70	18.5
D-249b	.043	.0406	4,300	105,800	.015	3.70	18.5
D-250a	.074	.0400	2,920	7,300	.015	6.46	32.2
D-250b	.074	.0400	3,020	75,500	.015	6.47	32.2
D-251a	.110	.0415	2,310	55,600	.015	9.25	46.1
D-251b	.107	.0405	2,140	52,900	.015	9.24	46.0
D-252a	.158	.0398	1,420	35,600	.015	13.88	69.2
D-252b	.166	.0434	1,440	34,600	.015	13.88	69.2
D-253a	.220	.0416	1,030	24,800	.015	18.50	92.2
D-253b	.222	.0419	1,100	26,200	.015	18.50	92.2
D-254a	.055	.052	5,420	104,100	.020	3.70	18.5
D-255a	.096	.0518	4,330	83,600	.020	6.48	32.3
D-255b	.096	.0519	4,400	85,000	.019	6.49	32.3
D-256a	.141	.0534	2,990	56,000	.020	9.24	46.0
D-256b	.141	.0534	3,240	60,700	.020	9.25	46.1
D-257a	.214	.0540	2,200	40,700	.020	13.86	69.2
D-257b	.217	.0546	2,540	46,500	.020	13.89	69.2
D-258a	.283	.0555	1,730	31,200	.020	18.48	92.1
D-258b	.281	.0553	1,895	34,300	.020	18.46	92.0
D-621a	.081	.077	10,470	136,000	.030	3.68	18.4
D-621b	.081	.0765	10,140	132,800	.030	3.70	18.5
D-622a	.146	.077	6,900	90,100	.030	6.46	32.7
D-622b	.146	.077	7,300	94,700	.030	6.46	32.7
D-623a	.213	.0805	5,900	73,400	.030	9.25	46.1
D-623b	.212	.0805	5,600	69,600	.030	9.24	46.0
D-624a	.318	.0800	3,970	49,700	.030	13.87	69.2
D-624b	.318	.0800	4,000	50,000	.030	13.87	69.2
D-625a	.426	.0805	3,110	38,600	.030	18.49	92.1
D-625b	.427	.0805	3,110	38,600	.030	18.51	92.4
D-626b	.150	.1425	19,800	139,000	.049	3.68	18.4
D-627a	.265	.143	15,100	105,800	.048	6.48	32.3
D-627b	.263	.1415	15,600	110,000	.048	6.48	32.3
D-628a	.380	.1435	13,600	94,600	.049	9.26	46.1
D-628b	.380	.1440	13,100	91,000	.049	9.22	45.9
D-629a	.572	.1444	9,850	68,300	.049	13.85	69.0
D-629b	.571	.1440	9,150	63,500	.049	13.88	69.2
D-630a	.764	.1440	7,880	54,800	.049	18.50	92.2
D-630b	.760	.1435	8,200	57,100	.048	18.49	92.1

TABLE XII

[Stiffener width, W=0.500 inch. Stiffener pitch=2.50 inches]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener depth (D inches)	Percent reinforcement	Type of failure
					Stiffener (inch)	Sheet (inch)								
EA-259a	0.262	0.1980	13,050	65,900	0.010	0.009	4.63	8.42	4	0.0758	0.1222	0.500	57.5	F
EA-260a	.511	.1927	10,900	56,600	.010	.009	9.27	8.33	4	.0750	.1177	.500	56.7	F
EA-260b	.515	.1937	12,000	62,000	.010	.009	9.30	8.40	4	.0756	.1181	.500	56.7	F
EA-261a	.763	.1911	9,300	48,600	.010	.009	13.94	8.40	4	.0756	.1155	.500	56.2	G
EA-261b	.762	.1910	10,450	54,700	.010	.009	13.94	8.40	4	.0756	.1154	.500	56.2	G
EA-262a	.415	.2108	11,700	55.450	.009	.009	6.88	8.49	4	.0764	.1344	.750	59.8	H
EA-262b	.415	.2108	12,100	57,350	.009	.009	6.88	8.49	4	.0764	.1344	.750	59.8	A
EA-263a	.827	.2100	11,050	52,600	.010	.010	13.76	8.45	4	.0845	.1255	.750	55.7	F
EA-263b	.822	.2085	10,150	48,650	.010	.010	13.79	8.42	4	.0842	.1243	.750	55.5	F
EA-264a	1.236	.2085	10,220	49,000	.009	.009	20.68	8.34	4	.0750	.1335	.750	59.7	F
EA-264b	1.232	.2080	10,100	48,600	.009	.010	20.68	8.34	4	.0834	.1246	.750	55.5	F
EA-265a	.597	.2298	10,570	46,000	.010	.010	9.08	8.38	4	.0838	.1460	1.00	59.4	F
EA-265b	.591	.2258	10,410	46,100	.010	.010	9.15	8.42	4	.0842	.1416	1.00	58.5	F
EA-266a	1.181	.2255	10,350	45,900	.009	.009	18.32	8.42	4	.0758	.1497	1.00	62.5	F
EA-266b	1.165	.2220	10,050	45,250	.009	.009	18.33	8.39	4	.0755	.1465	1.00	61.9	F
EA-267a	1.708	.2228	8,950	40,150	.009	.009	26.80	8.39	4	.0755	.1473	1.00	62.0	G
EA-267b	1.872	.2440	11,500	47,100	.010	.009	26.79	8.38	4	.0754	.1686	1.00	65.2	G
EA-268a	.795	.2460	10,400	42,200	.009	.009	11.28	8.46	4	.0761	.1699	1.25	65.4	A
EA-268b	.848	.2623	11,500	43,800	.009	.010	11.28	8.38	4	.0838	.1785	1.25	64.0	A
EA-269a	1.718	.2658	11,250	42,250	.010	.010	22.60	8.35	4	.0835	.1823	1.25	64.6	A
EA-269b	1.726	.2660	11,250	42,250	.010	.010	22.66	8.39	4	.0839	.1821	1.25	64.6	F
EA-270a	2.373	.2443	9,370	38,400	.009	.010	33.93	8.40	4	.0840	.1603	1.25	61.6	G
EA-270b	2.344	.2420	9,450	39,000	.009	.009	33.88	8.47	4	.0762	.1658	1.25	64.8	G
EA-271a	1.057	.2760	9,870	35,750	.010	.010	13.38	8.38	4	.0838	.1922	1.50	65.8	F
EA-271b	1.067	.2780	10,150	36,500	.010	.010	13.40	8.37	4	.0837	.1943	1.50	66.0	F
EA-272a	2.099	.2735	9,500	34,750	.009	.009	26.80	8.43	4	.0759	.1976	1.50	68.7	G
EA-272b	2.090	.2725	9,600	35,200	.010	.009	26.80	8.41	4	.0757	.1968	1.50	68.7	G
EA-273a	3.200	.2780	10,250	36,850	.010	.009	40.20	8.39	4	.0755	.2025	1.50	69.2	G
EA-273b	3.203	.2783	10,000	35,900	.010	.009	40.19	8.39	4	.0755	.2028	1.50	69.2	G
EA-274a	.467	.3523	20,750	58,900	.010	.028	4.64	8.33	4	.2332	.1191	.500	29.9	E
EA-274b	.462	.3535	20,900	59,100	.010	.028	4.58	8.34	4	.2335	.1200	.500	30.0	E

TABLE XII—Continued

[Stiffener width, W=0.500 inch. Stiffener pitch=2.50 inches]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener depth (D inches)	Percent reinforced	Type of failure
					Stiffener (inch)	Sheet (inch)								
EA-275a	0.937	0.3523	20,700	58,750	0.010	0.028	9.30	8.38	4	0.2346	0.1177	0.500	29.6	G
EA-275b	.934	.3510	21,350	60,800	.010	.028	9.30	8.35	4	.2422	.1088	.500	27.3	G
EA-276a	1.386	.3470	18,750	54,000	.010	.028	13.96	8.35	4	.2338	.1132	.500	28.8	G
EA-276b	1.389	.3495	19,950	57,000	.010	.028	13.90	8.38	4	.2346	.1149	.500	29.1	G
EA-277a	.731	.3719			.009	.028	6.88	8.41	4	.2355	.1364	.750	32.8	
EA-277b	.730	.3710	20,850	56,200	.009	.029	6.88	8.44	4	.2448	.1262	.750	30.4	E
EA-278a	1.463	.3710	19,350	52,150	.009	.029	13.78	8.43	4	.2445	.1265	.750	30.4	E
EA-278b	1.450	.3677	20,000	54,400	.009	.029	13.78	8.43	4	.2445	.1232	.750	29.8	A
EA-279a	2.181	.3680			.009	.029	20.70	8.42	4	.2442	.1238	.750	30.0	
EA-279b	2.179	.3680	18,350	49,800	.009	.029	20.69	8.43	4	.2445	.1235	.750	29.8	G
EA-280a	.999	.3815	18,140	47,600	.010	.028	9.15	8.42	4	.2357	.1458	1.000	34.3	H
EA-280b	.977	.3730	16,080	43,100	.010	.028	9.16	8.33	4	.2332	.1398	1.000	33.4	H
EA-281a	1.968	.3746	15,900	42,400	.009	.028	18.35	8.38	4	.2346	.1400	1.000	33.4	A
EA-281b	1.993	.3810	17,750	46,600	.009	.028	18.27	8.38	4	.2346	.1464	1.000	34.4	A
EA-282a	2.862	.3750	15,510	41,400	.009	.028	26.70	8.41	4	.2355	.1395	1.000	33.3	A
EA-282b	3.174	.4140	17,800	43,000	.009	.031	26.80	8.50	4	.2635	.1505	1.000	32.7	H
EA-283a	1.291	.3985	17,100	42,950	.009	.028	11.31	8.37	4	.2343	.1642	1.250	37.0	C
EA-283b	1.276	.3950	18,050	45,700	.009	.028	11.28	8.41	4	.2355	.1595	1.250	36.3	C
EA-284a	2.572	.3978	16,750	42,100	.009	.028	22.58	8.47	4	.2372	.1606	1.250	36.5	C
EA-284b	2.729	.4220	16,300	38,600	.010	.030	22.60	8.42	4	.2526	.1694	1.250	36.1	J
EA-285a	3.873	.3995	15,150	37,900	.009	.028	33.88	8.34	4	.2335	.1660	1.250	37.2	G
EA-285b	3.850	.3970	16,050	40,400	.009	.028	33.90	8.44	4	.2363	.1607	1.250	36.6	E
EA-286a	1.695	.4425	18,150	41,000	.010	.029	13.38	8.46	4	.2450	.1970	1.500	40.4	I
EA-286b	1.695	.4425	18,350	41,500	.010	.029	13.38	8.46	4	.2455	.1970	1.500	40.4	I
EA-287a	3.391	.4420	17,800	40,250	.010	.028	26.81	8.45	4	.2365	.2055	1.500	42.3	G
EA-287b	3.346	.4380	17,700	40,400	.010	.028	26.70	8.45	4	.2365	.2015	1.500	41.8	I
EA-288a	5.037	.4370	14,000	32,000	.009	.029	40.22	8.40	4	.2435	.1935	1.500	40.0	H
EA-288b	5.094	.4420	16,200	36,600	.009	.031	40.22	8.43	4	.2615	.1805	1.500	36.8	G
EA-289a	.706	.5320	26,750	50,250	.010	.049	4.64	8.38	4	.4105	.1215	.500	19.9	H
EA-289b	.705	.5320	29,430	55,250	.010	.049	4.63	8.44	4	.4140	.1180	.500	19.4	H
EA-290a	1.400	.5270	27,090	51,400	.010	.049	9.28	8.43	4	.4130	.1140	.500	18.9	G
EA-290b	1.395	.5260	30,400	57,750	.010	.049	9.26	8.37	4	.4100	.1160	.500	19.2	A
EA-291a	2.090	.5255	29,750	56,600	.010	.049	13.90	8.39	4	.4110	.1145	.500	18.9	H
EA-291b	2.101	.5255	27,580	52,500	.010	.049	13.96	8.39	4	.4110	.1145	.500	18.9	G
EA-292a	1.054	.5430	26,650	49,100	.009	.050	6.79	8.36	4	.4180	.1250	.750	20.1	H
EA-292b	1.067	.5430	30,475	56,200	.010	.049	6.87	8.37	4	.4100	.1330	.750	21.4	H
EA-293a	2.136	.5410	31,760	58,700	.009	.050	13.78	8.38	4	.4190	.1220	.750	19.6	G
EA-293b	2.130	.5380	26,410	49,100	.009	.049	13.83	8.37	4	.4100	.1280	.750	20.7	H
EA-294a	3.199	.5400	31,550	58,400	.009	.049	20.70	8.40	4	.4115	.1285	.750	20.8	D
EA-294b	3.213	.5425	32,000	59,000	.010	.049	20.71	8.39	4	.4110	.1315	.750	21.2	D
EA-295a	1.453	.5540	18,430	33,300	.009	.048	9.18	8.35	4	.4010	.1510	1.000	24.2	H
EA-295b	1.469	.5600	28,790	51,450	.009	.049	9.18	8.44	4	.4140	.1460	1.000	22.9	H
EA-296a	2.922	.5565	24,400	43,800	.009	.049	18.33	8.40	4	.4115	.1450	1.000	22.8	I
EA-296b	2.912	.5550	19,700	35,500	.009	.049	18.32	8.35	4	.4090	.1460	1.000	22.9	I
EA-297a	4.419	.5760	30,130	53,100	.009	.052	26.78	8.42	4	.4380	.1380	1.000	21.0	E
EA-297b	4.520	.5900	30,015	50,850	.011	.051	26.78	8.38	4	.4265	.1635	1.000	24.3	E
EA-298a	1.856	.5750	28,050	48,750	.009	.049	11.28	8.38	4	.4105	.1645	1.250	25.1	H
EA-298b	1.852	.5740	29,500	51,400	.009	.049	11.27	8.38	4	.4105	.1635	1.250	25.0	H
EA-299a	3.730	.5770	24,620	42,650	.009	.049	22.58	8.48	4	.4150	.1620	1.250	24.8	A
EA-299b	3.748	.5800	27,175	46,850	.009	.049	22.59	8.50	4	.4160	.1640	1.250	25.0	F
EA-300a	5.647	.5815	27,350	47,000	.009	.049	33.90	8.46	4	.4145	.1670	1.250	25.4	I
EA-300b	5.639	.5810	24,150	41,550	.009	.049	33.88	8.38	4	.4100	.1710	1.250	25.9	I
EA-301a	2.364	.6170	24,060	39,000	.011	.049	13.39	8.41	4	.4120	.2050	1.500	29.4	I
EA-301b	2.365	.6190	26,400	42,650	.010	.049	13.37	8.36	4	.4095	.2095	1.500	29.9	I
EA-302a	4.715	.6160	29,790	48,400	.010	.049	26.80	8.41	4	.4120	.2040	1.500	29.4	I
EA-302b	4.629	.6040	29,000	48,000	.009	.049	26.80	8.36	4	.4095	.1945	1.500	28.5	I
EA-303a	6.885	.5970	25,540	42,750	.009	.049	40.27	8.42	4	.4125	.1845	1.500	27.4	D
EA-303b	6.971	.6055	24,900	41,100	.010	.050	40.20	8.42	4	.4210	.1845	1.500	26.9	D
EA-304a	.533	.4025	49,460	122,800	.030	.009	4.63	8.40	4	.0756	.3269	.500	78.5	G
EA-304b	.525	.3990	46,190	115,900	.030	.009	4.60	8.41	4	.0757	.3233	.500	78.2	G
EA-305a	1.044	.3930	41,600	105,900	.030	.009	9.30	8.39	4	.0755	.3175	.500	78.0	F
EA-305b	1.070	.4030	41,400	102,800	.030	.009	9.29	8.36	4	.0752	.3278	.500	78.5	F
EA-306a	1.598	.4020	33,775	83,900	.030	.009	13.88	8.33	4	.0749	.3271	.500	78.3	G
EA-306b	1.613	.4045			.030	.009	13.94	8.36	4	.0752	.3293	.500	78.5	
EA-307a	.917	.4670	58,450	125,300	.030	.010	6.87	8.44	4	.0844	.3826	.750	79.3	F
EA-307b	.919	.4673	59,250	126,800	.030	.010	6.87	8.48	4	.0848	.3825	.750	79.3	F
EA-308a	1.841	.4660	52,340	112,500	.030	.010	13.80	8.49	4	.0849	.3811	.750	79.2	G
EA-308b	1.804	.4575	48,070	105,100	.030	.009	13.78	8.42	4	.0757	.3818	.750	81.0	G
EA-309a	2.740	.4620	40,000	86,500	.030	.010	20.68	8.42	4	.0842	.3778	.750	79.0	J
EA-309b	2.757	.4650	41,690	89,800	.030	.009	20.70	8.42	4	.0757	.3893	.750	81.1	G
EA-310a	1.378	.5265	60,750	115,300	.030	.010	9.15	8.40	4	.0840	.4425	1.000	81.5	I
EA-310b	1.372	.5240	59,720	114,000	.030	.010	9.15	8.38	4	.0838	.4402	1.000	81.4	I
EA-311a	2.759	.5260	46,450	88,250	.030	.009	18.34	8.38	4	.0754	.4506	1.000	83.4	I
EA-311b	2.741	.5220	43,250	82,900	.030	.009	18.33	8.38	4	.0754	.4466	1.000	83.3	G
EA-312a	4.083	.5325	42,630	80,000	.030	.010	26.79	8.43	4	.0843	.4482	1.000	81.6	G
EA-312b	4.107	.5355	45,580	85,100	.030	.009	26.79	8.37	4	.0753	.4502	1.000	83.3	G
EA-313a	1.877	.5810	60,590	104,300	.029	.009	11.29	8.42	4	.0758	.5052	1.250	84.8	C
EA-313b	1.877	.5830	57,190	98,100	.029	.009	11.26	8.43	4	.0759	.5071	1.250	84.8	C
EA-314a	3.740	.5790	56,430	97,450	.030	.009	22.58	8.43	4	.0759	.5031	1.250	84.2	C
EA-314b	3.750	.5815	56,820	97,600	.030	.009	22.53	8.44	4	.0760	.5055	1.250	85.1	C
EA-315a	5.631	.5800	42,590	73,500	.030	.009	33.92	8.43	4	.0759	.5041	1.250	84.8	G
EA-315b	5.628	.5800	44,920	77,500	.029	.009	33.88	8.44	4	.0760	.5040	1.250	84.8	G
EA-316a	2.518	.6575	51,620	78,500	.031	.010	13.39	8.49	4	.0849	.5726	1.500	85.2	J
EA-316b	2.514	.6550	55,300	84,400	.030	.009	13.39	8.40	4	.0756	.5794	1.500	86.5	J
EA-317a	5.015	.6550	52,460	80,100	.031	.009	26.82	8.42	4	.0757	.5793	1.500	86.5	I
EA-317b	5.035	.6560	50,250	76,500	.031	.009	26.82	8.49	4	.0764	.4796	1.500	86.5	I
EA-318a	7.601	.6605	44,270	67,000	.031	.009	40.20	8.40	4	.0756	.5849	1.500	86.6	G
EA-318b	7.594	.6595	40,410	61,200	.031	.009	40.24	8.47	4	.0762	.5833	1.500	86.7	G
EA-319a	.733	.5520	61,050	110,600	.030	.028	4.64	8.40	4	.2353	.3167	.500	53.1	B
EA-319b	.735	.5540	60,750	109,700	.030	.028	4.64	8.39	4	.2350	.3190	.500	53.2	B
EA-320a	1.467	.5510	54,500	98,950	.030	.029	9.29	8.39	4	.2435	.3075	.500	51.5	G

TABLE XII—Continued

[Stiffener width, W=0.500 inch. Stiffener pitch=2.50 inches]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness: Stiffener (inch)	Thickness: Sheet (inch)	Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener depth (D inches)	Percent reinforcement	Type of failure
EA-320b	1.475	0.5545	55,540	100,300	0.030	0.028	9.31	8.38	4	0.2346	0.3199	0.500	53.3	G
EA-321a	2.200	.5510	44,910	81,500	.030	.029	13.94	8.40	4	.2437	.3073	.500	51.5	G
EA-321b	2.193	.5505	35,000	63,500	.030	.028	13.92	8.35	4	.2340	.3165	.500	53.1	J
EA-322a	1.221	.6205	68,700	110,600	.030	.029	6.87	8.40	4	.2437	.3768	.750	56.5	J
EA-322b	1.255	.6400			.030	.030	6.86	8.49	4	.2546	.3854	.750	56.2	
EA-323a	2.514	.6375	65,300	102,300	.030	.030	13.78	8.46	4	.2540	.3835	.750	56.1	G
EA-323b	2.457	.6230			.030	.029	13.79	8.43	4	.2442	.3788	.750	56.7	J
EA-324a	3.695	.6245	40,000	64,050	.030	.029	20.70	8.42	4	.2440	.3805	.750	56.6	J
EA-324b	3.767	.6370			.030	.031	20.67	8.46	4	.2622	.3748	.750	54.8	J
EA-325a	1.794	.6855	67,000	97,800	.030	.029	9.14	8.43	4	.2442	.4413	1.000	60.3	J
EA-325b	1.776	.6850	73,850	107,800	.030	.029	9.06	8.42	4	.2440	.4410	1.000	60.3	I
EA-326a	3.578	.6840	70,750	103,700	.030	.029	18.31	8.41	4	.2440	.4400	1.000	60.3	I
EA-326b	3.562	.6800	45,000	66,200	.030	.029	18.32	8.44	4	.2447	.4353	1.000	60.0	J
EA-327a	5.247	.6840	60,510	88,500	.030	.028	26.82	8.41	4	.2355	.4485	1.000	61.6	I
EA-327b	5.232	.6825	55,040	80,750	.030	.028	26.78	8.41	4	.2355	.4470	1.000	61.2	I
EA-328a	2.400	.7420	71,550	96,500	.030	.029	11.30	8.38	4	.2430	.4990	1.250	63.3	H
EA-328b	2.405	.7440	71,950	96,700	.030	.029	11.30	8.38	4	.2430	.5010	1.250	63.3	H
EA-329a	4.830	.7465	74,990	100,400	.030	.029	22.60	8.41	4	.2440	.5025	1.250	63.3	H
EA-329b	4.892	.7575	71,520	94,400	.030	.030	22.57	8.48	4	.2543	.5032	1.250	62.5	H
EA-330a	7.208	.7440	63,090	84,900	.030	.029	33.90	8.22	4	.2383	.5057	1.250	63.5	G
EA-330b	7.189	.7410	62,750	84,700	.030	.029	33.89	8.22	4	.2383	.5027	1.250	63.5	G
EA-331a	3.102	.8150	70,410	86,500	.030	.029	13.31	8.42	4	.2442	.5708	1.500	66.4	I
EA-331b	3.121	.8150	70,750	86,900	.030	.029	13.38	8.42	4	.2442	.5708	1.500	66.4	I
EA-332a	6.251	.8155	69,910	85,700	.030	.028	26.78	8.50	4	.2380	.5775	1.500	67.3	J
EA-332b	6.321	.8255	66,630	80,700	.030	.029	26.79	8.39	4	.2435	.5820	1.500	66.8	I
EA-333a	9.417	.8180	62,970	77,000	.030	.029	40.20	8.45	4	.2450	.5730	1.500	66.4	G
EA-333b	9.430	.8190	66,000	80,600	.031	.029	40.25	8.45	4	.2450	.5740	1.500	66.4	G
EA-334a	.972	.7290	78,690	108.000	.030	.049	4.66	8.39	4	.4110	.3180	.500	39.4	H
EA-334b	.965	.7260	78,730	108,400	.030	.049	4.64	8.38	4	.4100	.3160	.500	39.2	H
EA-335a	1.950	.7350	72,990	98,700	.030	.049	9.26	8.41	4	.4120	.3230	.500	39.7	G
EA-335b	1.948	.7320	70,660	96,500	.030	.049	9.28	8.42	4	.4125	.3195	.500	39.4	G
EA-336a	2.895	.7305	59,500	81,400	.030	.049	13.85	8.39	4	.4110	.3195	.500	39.4	G
EA-336b	2.920	.7310	45,700	62,550	.030	.049	13.97	8.41	4	.4120	.3190	.500	39.4	G
EA-337a	1.585	.7935	87,700	110,600	.030	.049	6.98	8.43	4	.4130	.3805	.750	43.8	H
EA-337b	1.581	.7900	88,000	111,300	.030	.049	7.00	8.46	4	.4150	.3750	.750	43.4	H
EA-338a	3.110	.7890	78,250	99,250	.030	.049	13.79	8.41	4	.4120	.3770	.750	43.5	G
EA-338b	3.100	.7870	81,340	103,300	.030	.049	13.77	8.42	4	.4125	.3745	.750	43.3	G
EA-339a	4.669	.7890	62,175	78.900	.030	.049	20.69	8.42	4	.4125	.3765	.750	43.5	G
EA-339b	4.675	.7900	66,000	83,600	.030	.049	20.69	8.42	4	.4125	.3775	.750	43.5	G
EA-340a	2.231	.8590	89,100	103,800	.030	.049	9.09	8.45	4	.4140	.4450	1.000	47.6	H
EA-340b	2.236	.8515	75,000	88,000	.030	.049	9.16	8.36	4	.4100	.4415	1.000	47.4	J
EA-341a	4.468	.8560	50,000	58,400	.030	.049	18.26	8.43	4	.4130	.4430	1.000	47.5	J
EA-341b	4.488	.8550	70,000	81,800	.031	.049	18.33	8.41	4	.4120	.4430	1.000	47.5	J
EA-342a	6.604	.8605	64,900	75,400	.031	.049	26.79	8.51	4	.4170	.4435	1.000	47.5	G
EA-342b	6.703	.8760	72,410	82,600	.031	.050	26.77	8.44	4	.4220	.4540	1.000	47.6	I
EA-343a	2.946	.9130	78,950	86,500	.030	.049	11.28	8.43	4	.4130	.5000	1.250	50.5	J
EA-343b	2.958	.9155	89,890	98,200	.030	.049	11.28	8.45	4	.4140	.5015	1.250	50.6	H
EA-344a	5.923	.9175	68,060	74,200	.030	.049	22.58	8.46	4	.4150	.5025	1.250	50.6	J
EA-344b	5.924	.9175	87,840	95,700	.030	.049	22.59	8.43	4	.4130	.5045	1.250	50.6	H
EA-345a	8.906	.9190	75,390	82.000	.031	.049	33.90	8.42	4	.4125	.5065	1.250	50.8	G
EA-345b	8.875	.9150	40,000	43,700	.030	.049	33.87	8.48	4	.4150	.5000	1.250	50.5	J
EA-346a	3.762	.9815	77,470	78.900	.030	.049	13.39	8.39	4	.5110	.5705	1.500	53.8	J
EA-346b	3.841	1.0100	87,370	86,600	.030	.052	13.30	8.42	4	.4380	.5720	1.500	51.9	H
EA-347a	7.622	.9950	81,500	82,000	.031	.049	26.79	8.46	4	.4150	.5800	1.500	52.2	J
EA-347b	7.605	.9940	87,100	87,600	.031	.049	26.79	8.49	4	.4160	.5780	1.500	54.1	I
EA-348a	11.437	.9945	76,700	77,200	.031	.049	40.21	8.51	4	.4170	.5775	1.500	54.1	J
EA-348b	11.461	.9945	72,300	72,700	.031	.050	40.20	8.40	4	.4200	.5745	1.500	53.4	J
EA-349a	.868	.6510	92,900	142,800	.050	.010	4.66	8.56	4	.0856	.5654	.500	85.0	G
EA-349b	.869	.6530	92,700	142,000	.050	.010	4.65	8.55	4	.0855	.5675	.500	85.0	G
EA-350a	1.738	.6550	72,500	110,500	.050	.010	9.28	8.52	4	.0852	.5698	.500	85.1	G
EA-350b	1.724	.6540	73,600	112,600	.050	.010	9.24	8.53	4	.0853	.5687	.500	85.1	G
EA-351a	2.608	.6540	55,700	85,200	.050	.010	13.95	8.48	4	.0848	.4592	.500	85.1	G
EA-351b	2.606	.6570	62,450	94,900	.050	.010	13.88	8.53	4	.0853	.5617	.500	85.0	G
EA-352a	1.504	.7650			.050	.010	6.88	8.71	4	.0871	.6779	.750	87.1	
EA-352b	1.488	.7540	109,450	145,300	.050	.009	6.90	8.50	4	.0765	.6775	.750	88.3	G
EA-353a	2.966	.7520	87,150	102,700	.050	.010	13.79	8.52	4	.0852	.6668	.750	87.0	G
EA-353b	3.017	.7650	89,250	116,700	.050	.010	13.78	8.49	4	.0849	.6801	.750	87.2	G
EA-354a	4.456	.7530	66,300	88,000	.050	.009	20.68	8.52	4	.0767	.6763	.750	88.3	G
EA-354b	4.456	.7530	67,000	89,000	.050	.009	20.68	8.51	4	.0766	.6764	.750	88.3	G
EA-355a	2.231	.8545	118,350	138,600	.050	.010	9.12	8.48	4	.0848	.7697	1.000	88.5	I
EA-355b	2.242	.8550	124,800	146,000	.050	.010	9.16	8.47	4	.0847	.7603	1.000	88.4	I
EA-356a	4.465	.8570	105,900	123,500	.049	.010	18.22	8.50	4	.0850	.7720	1.000	88.5	G
EA-356b	4.481	.8535	103,000	120,600	.049	.010	18.34	8.42	4	.0842	.7693	1.000	88.5	G
EA-357a	6.544	.8550	82,000	95,900	.048	.009	26.77	8.44	4	.0760	.7790	1.000	89.6	G
EA-357b	6.645	.8660	81,500	94.100	.049	.010	26.80	8.52	4	.0852	.7808	1.000	88.6	G
EA-358a	3.093	.9560	125,100	130,900	.050	.010	11.30	8.46	4	.0846	.8714	1.250	89.7	I
EA-358b	3.117	.9620	126,500	131,400	.050	.010	11.31	8.47	4	.0847	.8773	1.250	89.6	I
EA-359a	6.218	.9630	117,700	122,300	.050	.010	22.60	8.56	4	.0856	.8774	1.250	89.6	G
EA-359b	6.191	.9590	111,100	115,900	.050	.010	22.55	8.52	4	.0852	.8738	1.250	89.9	I
EA-360a	9.342	.9620	80,900	84,000	.049	.009	33.92	8.56	4	.0771	.8849	1.250	90.7	G
EA-360b	9.448	.9740	81,900	84,100	.050	.010	33.90	8.48	4	.0848	.8892	1.250	90.0	G
EA-361a	4.056	1.0600	125,800	118,700	.050	.010	13.39	8.55	4	.0855	.9745	1.500	90.6	I
EA-361b	4.056	1.0580	130,300	123,200	.050	.010	13.40	8.53	4	.0853	.9727	1.500	90.6	I
EA-362a	8.219	1.0720	112,300	104,700	.050	.010	26.78	8.52	4	.0852	.9868	1.500	90.9	G
EA-362b	8.130	1.0600	104,900	99,000	.050	.010	26.78	8.52	4	.0852	.9748	1.500	90.5	J
EA-363a	12.170	1.0580	85,700	81,000	.049	.009	40.20	8.48	4	.0763	.9817	1.500	91.6	G
EA-363b	12.201	1.0600	83,800	79,000	.049	.009	40.21	8.48	4	.0763	.9837	1.500	91.7	G
EA-364a	1.100	.8295	103,650	125,000	.050	.031	4.64	8.51	4	.2640	.5655	.500	64.5	G
EA-364b	1.105	.8335	104,300	125,100	.050	.031	4.64	8.52	4	.2642	.5693	.500	64.7	J

TABLE XII—Continued

[Stiffener width, W=0.500 inch. Stiffener pitch=2.50 inches]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width Width (inches)	Number of stiffeners	Area of sheet	Area of stiffener	Stiffener depth (D inches)	Percent reinforcement	Type of failure
					Stiffener (inch)	Sheet (inch)								
EA-365a	2.228	0.8330	85,550	102,900	0.050	0.030	9.35	8.52	4	0.2557	0.5773	0.500	65.8	J
EA-365b	2.240	.8370	85,700	102,300	.050	.030	9.36	8.52	4	.2557	.5813	.500	65.9	G
EA-366a	3.335	.8370	71,400	85,300	.050	.030	13.93	8.52	4	.2557	.5813	.500	65.9	G
EA-366b	3.353	.8390	69,500	82,900	.050	.030	13.97	8.52	4	.2557	.5833	.500	66.0	G
EA-367a	1.805	.9200	119,200	129,600	.050	.029	6.85	8.51	4	.2465	.6735	.750	69.9	G
EA-367b	1.812	.9145	119,300	130,600	.050	.029	6.92	8.50	4	.2463	.6682	.750	69.6	G
EA-368a	3.633	.9210	104,600	113,500	.050	.029	13.77	8.54	4	.2475	.6735	.750	69.8	G
EA-368b	3,627	.9200	103,300	112,400	.050	.029	13.79	8.50	4	.2463	.6737	.750	69.8	G
EA-369a	5.463	.9225	81,900	88,900	.050	.029	20.70	8.58	4	.2487	.6738	.750	69.9	G
EA-369b	5.480	.9250	81,200	87,900	.050	.029	20.68	8.48	4	.2460	.6790	.750	70.0	G
EA-370a	2.673	1.0180	124,300	122,000	.050	.029	9.18	8.53	4	.2472	.7708	1.000	72.8	J
EA-370b	2.649	1.0110	133,700	132,300	.050	.029	9.17	8.50	4	.2463	.7647	1.000	72.5	G
EA-371a	5,285	1.0080	111,400	110,600	.048	.028	18.33	8.49	4	.2377	.7703	1.000	73.3	G
EA-371b	5.338	1.0180	110,300	108,300	.049	.028	18.33	8.49	4	.2377	.7803	1.000	73.6	G
EA-372a	7.830	1.0210	94,700	92,700	.049	.029	26.79	8.54	4	.2475	.7735	1.000	72.7	G
EA-372b	7.738	1.0090	105,200	104,200	.048	.028	26.80	8.54	4	.2390	.7700	1.000	73.3	G
EA-373a	3.702	1.1470	147,400	128,600	.050	.031	11.28	8.64	4	.2678	.8792	1.250	74.0	I
EA-373b	3.680	1.1380	143,200	125,800	.050	.030	11.29	8.54	4	.2560	.8820	1.250	74.7	J
EA-374a	7.419	1.1500	120,100	104,400	.050	.031	22.54	8.71	4	.2700	.8800	1.250	74.0	J
EA-374b	7.416	1.1480	134,000	116,600	.050	.031	22.59	8.56	4	.2655	.8825	1.250	74.0	J
EA-375a	11.120	1.1470	107,500	93,700	.050	.031	33.87	8.50	4	.2635	.8835	1.250	74.0	G
EA-375b	11.153	1.1500	105,500	91,700	.049	.031	33.88	8.60	4	.2665	.8835	1.250	74.0	G
EA-376a	4.683	1.2210	144,900	118,700	.050	.029	13.40	8.54	4	.2475	.9735	1.500	77.0	J
EA-376b	4.683	1.2210	143,300	117,300	.050	.029	13.39	8.52	4	.2470	.9740	1.500	77.0	I
EA-377a	9.372	1.2220	125,200	102,400	.049	.030	26.80	8.50	4	.2550	.9670	1.500	76.5	H
EA-377b	9.559	1.2460	131,800	105,900	.050	.032	26.80	8.47	4	.2708	.9752	1.500	75.3	G
EA-378a	14.045	1.2225	108,100	88,400	.049	.029	40.15	8.54	4	.2475	.9750	1.500	74.7	J
EA-378b	14.240	1.2380	114,900	92,800	.049	.031	40.17	8.59	4	.2660	.9720	1.500	75.8	J
EA-379a	1.312	.9890	123,400	124,800	.050	.049	4.64	8.54	4	.4185	.5705	.500	53.8	G
EA-379b	1.320	.9905	118,300	119,600	.050	.049	4.66	8.57	4	.4200	.5705	.500	53.8	J
EA-380a	2.653	.9950	101,700	102,400	.050	.049	9.30	8.58	4	.4203	.5747	.500	54.0	G
EA-380b	2.649	.9910	103,000	103,800	.050	.049	9.34	8.52	4	.4175	.5735	.500	54.0	G
EA-381a	3.937	.9860	83,300	84,500	.050	.049	13.96	8.52	4	.4175	.5685	.500	53.6	G
EA-381b	3.953	.9940	84,100	84,600	.050	.049	13.90	8.54	4	.4185	.5755	.500	54.0	G
EA-382a	2.168	1.1000	138,200	125,600	.050	.050	6.89	8.48	4	.4240	.6760	.750	57.5	J
EA-382b	2.140	1.0880	136,250	125,200	.050	.049	6.88	8.51	4	.4165	.6715	.750	57.8	J
EA-383a	4.300	1.0920	122,100	111,800	.050	.049	13.78	8.52	4	.4175	.6745	.750	57.8	G
EA-383b	4.284	1.0880	118,650	109,000	.050	.049	13.77	8.56	4	.4195	.6685	.750	57.7	J
EA-384a	6.451	1.0900	87,200	80,000	.050	.049	20.68	8.56	4	.4195	.6705	.750	57.7	J
EA-384b	6.462	1.0925	94,000	86,000	.050	.049	20.69	8.56	4	.4195	.6730	.750	57.8	J
EA-385a	3.134	1.1970	137,800	115,200	.050	.049	9.16	8.54	4	.4185	.7785	1.000	61.4	J
EA-385b	3.081	1.1800	162,500	137,600	.050	.049	9.13	8.45	4	.4140	.7660	1.000	61.0	H
EA-386a	6.294	1.1990	120,300	100,300	.050	.049	18.34	8.53	4	.4180	.7810	1.000	61.4	J
EA-386b	6.280	1.1980	134,000	111,800	.049	.049	18.33	8.53	4	.4180	.7800	1.000	61.4	J
EA-387a	9.114	1.1930	105,100	88,000	.049	.049	26.72	8.64	4	.4230	.7700	1.000	61.1	G
EA-387b	9.226	1.2030	109,300	90,900	.050	.051	26.79	8.48	4	.4150	.7880	1.000	60.6	G
EA-388a	4.185	1.2960	146,200	112,900	.050	.049	11.28	8.63	4	.4225	.8735	1.250	64.0	J
EA-388b	4.195	1.2980	154,300	118,800	.050	.049	11.29	8.62	4	.4220	.8760	1.250	64.1	J
EA-389a	8.427	1.3040	126,900	97,300	.050	.049	22.57	8.70	4	.4260	.8780	1.250	64.1	J
EA-389b	8.414	1.3030	142,100	109,000	.050	.049	22.58	8.64	4	.4230	.8800	1.250	64.2	J
EA-390a	12.744	1.3160	122,500	93,200	.050	.049	33.91	8.93	4	.4375	.8785	1.250	64.2	G
EA-390b	12.644	1.3050	106,700	81,7[illegible]	.050	.049	33.91	8.64	4	.4230	.8820	1.250	64.2	J
EA-391a	5.381	1.4020	149,[illegible]50	106,800	.050	.050	13.42	8.58	4	.4290	.9730	1.500	66.0	J
EA-391b	5.355	1.4000	164,800	117,700	.050	.049	13.37	8.53	4	.4180	.9820	1.500	66.7	I
EA-392a	10.700	1.3970	150,300	107,600	.050	.049	26.70	8.54	4	.4185	.9785	1.500	66.7	J
EA-392b	10.709	1.4030	133,300	95,000	.049	.050	26.70	8.48	4	.4240	.9790	1.500	6[illegible].3	J
EA-393a	16.115	1.4025	101,200	72,200	.049	.049	40.17	8.57	4	.4200	.9825	1.500	66.8	J
EA-393b	16.070	1.3980	129,800	92,800	.049	.049	40.17	8.64	4	.4230	.9750	1.500	66.7	J

TABLE XIII

[Stiffener pitch=2.50 inches. Stiffener depth, D=0.500 inch]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq.in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener width (W-inches)	Percent reinforcement	Type of failure
					Stiffener (inch)	Sheet (inch)								
EB-394a	0.264	0.1998	12,300	61,550	0.009	0.009	4.62	8.63	4	0.0776	0.1222	0.75	57.6	F
EB-394b	.264	.1998	12,500	62,500	.010	.010	4.62	8.71	4	.0871	.1127	.75	53.0	F
EB-395a	.529	.1997	10,480	52,450	.010	.010	9.26	8.66	4	.0866	.1131	.75	53.1	A
EB-395b	.535	.2020	11,380	56,350	.010	.009	9.25	8.66	4	.0780	.1240	.75	58.0	A
EB-396a	.800	.2015	9,950	49,400	.010	.010	13.88	8.64	4	.0864	.1151	.75	53.5	G
EB-396b	.793	.2005	11,250	56,100	.010	.010	13.82	8.74	4	.0874	.1131	.75	53.1	G
EB-397a	.278	.2120	11,800	55,600	.009	.009	4.58	8.84	4	.0795	.1325	1.00	59.5	C
EB-397b	.280	.2128	12,100	56,800	.009	.009	4.60	8.89	4	.0800	.1328	1.00	59.5	H
EB-398a	.558	.2125	10,630	50,000	.009	.010	9.18	8.82	4	.0882	.1243	1.00	59.5	A
EB-398b	.558	.2125	10,730	50,500	.010	.010	9.18	8.82	4	.0882	.1243	1.00	55.4	A
EB-399a	.852	.2160	10,650	49,250	.009	.010	13.77	8.96	4	.0896	.1264	1.00	55.9	G
EB-399b	.846	.2140	10,330	48,250	.009	.010	13.80	8.86	4	.0886	.1254	1.00	55.7	G
EB-400a	.304	.2426	12,950	53,400	.010	.009	4.37	9.20	4	.0828	.1598	1.25	64.0	F
EB-400b	.313	.2440	13,200	54,100	.010	.010	4.48	9.18	4	.0918	.1522	1.25	60.3	F
EB-401b	.572	.2265	11,200	49,450	.010	.010	8.84	9.12	4	.0912	.1353	1.25	57.5	A
EB-402a	.864	.2270	10,450	46,000	.009	.009	13.30	9.12	4	.0821	.1449	1.25	61.6	G
EB-402b	.864	.2260	10,150	44,900	.009	.009	13.34	9.12	4	.0821	.1439	1.25	61.5	G
EB-403a	.308	.2425	11,900	49,050	.009	.009	4.44	9.43	4	.0849	.1576	1.50	63.7	H
EB-403b	.293	.2393	11,500	48,100	.009	.009	4.28	9.37	4	.0843	.1550	1.50	63.3	F
EB-404a	.590	.2405	10,810	44,900	.010	.009	8.58	9.30	4	.0837	.1568	1.50	63.5	G
EB-404b	.565	.2300	11,280	49,000	.010	.009	8.58	9.38	4	.0844	.1456	1.50	61.8	G
EB-405a	.888	.2405	10,670	44,300	.009	.010	12.91	9.43	4	.0943	.1462	1.50	59.4	G
EB-405b	.877	.2375	9,900	41,650	.009	.009	12.90	9.28	4	.0835	.1540	1.50	63.1	G
EB-406a	.490	.3700	22,600	61,100	.010	.030	4.62	8.64	4	.2592	.1108	.75	27.0	E
EB-406b	.494	.3740	22,800	61,000	.010	.030	4.61	8.64	4	.2592	.1148	.75	27.7	E
EB-407a	1.003	.3790	21,690	57,250	.010	.030	9.25	8.64	4	.2592	.1198	.75	28.6	H
EB-407b	.996	.3760	22,480	59,800	.010	.030	9.26	8.64	4	.2592	.1168	.75	28.0	H
EB-408a	1.490	.3740	21,600	57,800	.009	.030	13.91	8.64	4	.2592	.1148	.75	27.7	D
EB-408b	1.483	.3740	19,850	53,100	.009	.030	13.86	8.63	4	.2589	.1151	.75	27.8	C
EB-409a	.520	.4005	23,100	57,650	.010	.030	4.54	8.90	4	.2670	.1335	1.00	30.8	E
EB-409b	.514	.3840	22,450	58,500	.009	.029	4.58	8.89	4	.2578	.1262	1.00	30.4	E
EB-410a	1.025	.3900	20,000	51,250	.010	.030	9.18	8.89	----	.2667	.1233	1.00	29.1	C
EB-410b	1.026	.3900	20,010	51,250	.010	.029	9.19	8.88	----	.2575	.1325	1.00	31.4	H
EB-411a	1.544	.3920	19,600	50,000	.009	.030	13.79	8.88	4	.2664	.1256	1.00	29.4	E
EB-411b	1.594	.4050	----	----	.010	.031	13.78	8.94	4	.2770	.1280	1.00	29.2	----
EB-412a	.517	.5090	24,800	60,600	.009	.029	4.42	9.12	4	.2645	.1345	1.25	31.6	E
EB-412b	.542	.4235	22,100	52,200	.010	.029	4.48	9.20	4	.2667	.1568	1.25	35.1	E
EB-413a	1.030	.4075	24,550	60,250	.010	.030	8.84	9.16	4	.2748	.1327	1.25	30.7	C
EB-413b	1.023	.4060	22,900	56,450	.010	.030	8.80	9.16	4	.2748	.1312	1.25	30.4	C
EB-414a	1.556	.4075	20,900	51,250	.009	.029	13.33	9.11	4	.2640	.1435	1.25	34.6	C
EB-414b	1.551	.4060	21,700	53,400	.009	.030	13.34	9.10	4	.2730	.1330	1.25	30.8	C
EB-415a	.526	.4280	24,000	56,050	.009	.030	4.30	9.37	4	.2810	.1469	1.50	32.8	E
EB-415b	.520	.4225	24,850	58,750	.009	.030	4.30	9.37	4	.2811	.1414	1.50	32.0	E
EB-416a	1.048	.4270	23,140	54,100	.010	.030	8.58	9.37	4	.2811	.1459	1.50	32.7	C
EB-416b	1.055	.4300	23,770	55,250	.009	.030	8.58	9.39	4	.2817	.1483	1.50	33.1	C
EB-417a	1.580	.4290	22,700	52,900	.009	.030	12.89	9.42	4	.2826	.1464	1.50	32.8	E
EB-417b	1.592	.4325	22,930	53,000	.009	.030	12.88	9.49	4	.2847	.1478	1.50	33.0	E
EB-418a	.724	.5460	23,900	43,750	.010	.050	4.63	8.62	4	.4310	.1150	.75	18.7	H
EB-418b	.718	.5430	29,500	54,350	.009	.050	4.62	8.64	4	.4320	.1110	.75	18.2	H
EB-419a	1.438	.5470	32,570	59,500	.010	.050	9.19	8.69	4	.4345	.1125	.75	18.4	A
EB-419b	1.440	.5420	26,825	49,500	.010	.049	9.27	8.66	4	.4250	.1170	.75	19.3	A
EB-420a	2.155	.5445	29,920	54,950	.009	.049	13.85	8.73	4	.4275	.1170	.75	19.3	H
EB-420b	2.156	.5425	----	----	.009	.049	13.88	8.69	4	.4255	.1170	.75	19.3	H
EB-421a	.759	.5770	28,800	49,900	.010	.050	4.60	8.88	4	.4440	.1330	1.00	21.0	C
EB-421b	.764	.5800	32,000	55,100	.011	.049	4.60	8.94	4	.4385	.1415	1.00	22.4	C
EB-422a	1.484	.5690	37,550	66,000	.010	.049	9.12	8.96	4	.4395	.1295	1.00	20.9	C
EB-422b	1.478	.5625	35,000	62,200	.010	.049	9.18	9.02	4	.4420	.1205	1.00	19.7	D
EB-423a	2.209	.5620	27,030	48,000	.009	.048	13.74	8.98	4	.4310	.1310	1.00	21.5	G
EB-423b	2.204	.5615	31,530	56,100	.009	.048	13.72	8.98	4	.4310	.1305	1.00	21.4	C
EB-424a	.737	.5795	25,750	44,450	.009	.049	4.45	9.09	4	.4450	.1345	1.25	21.5	C
EB-424b	.794	.6080	23,850	39,200	.010	.049	4.56	9.26	4	.4540	.1540	1.25	23.9	C
EB-425a	1.499	.5890	37,100	63,000	.010	.049	8.90	9.16	4	.4490	.1400	1.25	22.2	C
EB-425b	1.482	.5835	35,000	60,000	.010	.049	8.87	9.15	4	.4485	.1350	1.25	21.6	C
EB-426a	2.230	.5850	27,260	46,600	.009	.049	13.33	9.22	4	.4515	.1335	1.25	21.4	G
EB-426b	2.211	.5815	28,000	48,100	.009	.049	13.28	9.15	4	.4485	.1330	1.25	21.4	G
EB-427a	.767	.6160	33,650	54,600	.010	.041	4.35	9.24	4	.4800	.1360	1.50	21.1	C
EB-427b	.753	.6135	22,900	37,350	.009	.049	4.29	9.41	4	.4610	.1525	1.50	23.7	C
EB-428a	1.507	.6110	39,130	64,000	.010	.050	8.61	9.42	4	.4710	.1400	1.50	21.9	C
EB-428b	1.510	.6160	34,030	55,200	.010	.049	8.58	9.45	4	.4630	.1530	1.50	23.8	C
EB-429a	2.268	.6155	32,100	52,100	.009	.049	12.89	9.43	4	.4620	.1535	1.50	23.9	C
EB-429b	2.276	.6175	----	----	.009	.050	12.88	9.50	4	.4750	.1425	1.50	22.2	----
EB-430a	.590	.4360	39,900	91,550	.030	.010	4.72	8.68	4	.0868	.3492	.75	77.7	G
EB-430b	.578	.4300	38,100	88,600	.030	.009	4.70	8.69	4	.0782	.3518	.75	79.6	G
EB-431a	1.143	.4325	42,600	98,500	.030	.010	9.24	8.65	4	.0865	.3460	.75	77.6	G
EB-431b	1.142	.4320	43,600	100,900	.030	.010	9.24	8.62	4	.0862	.3458	.75	77.6	G
EB-432a	1.706	.4300	36,770	85,500	.030	.009	13.86	8.62	4	.0776	.3524	.75	79.7	G
EB-432b	1.717	.4320	32,280	74,700	.030	.009	13.88	8.66	4	.0780	.3540	.75	79.7	G
EB-433a	.614	.4620	51,530	111,400	.030	.010	4.64	8.88	4	.0888	.3732	1.00	78.8	H
EB-433b	.601	.4580	51,880	113,400	.030	.010	4.59	8.90	4	.0890	.3690	1.00	78.6	G
EB-434a	1.225	.4635	46,330	99,900	.030	.010	9.25	8.94	4	.0894	.3741	1.00	70.0	G
EB-434b	1.220	.4640	41,210	88,900	.030	.010	9.19	8.92	4	.0892	.3748	1.00	78.0	G
EB-435a	1.848	.4670	35,500	76,000	.029	.010	13.83	8.87	4	.0887	.3783	1.00	79.1	G
EB-435b	1.836	.4660	37,520	80,500	.030	.009	13.76	8.94	4	.0805	.3855	1.00	81.0	G
EB-436a	.623	.5005	52,080	104,200	.029	.009	4.35	9.10	4	.0819	.4186	1.25	82.3	J
EB-436b	.629	.4970	50,860	102,400	.030	.009	4.42	9.15	4	.0824	.4146	1.25	82.2	C
EB-437a	1.266	.4980	49,290	99,000	.030	.010	8.87	9.16	4	.0916	.4064	1.25	80.3	C
EB-437b	1.268	.5000	45,590	91,200	.030	.010	8.86	9.14	4	.0914	.4086	1.25	80.3	C
EB-438a	1.909	.4830	42,110	87,150	.029	.009	13.81	9.17	4	.0825	.4005	1.25	81.6	C
EB-438b	1.903	.5005	33,920	67,750	.029	.010	13.29	9.16	4	.0916	.4089	1.25	80.3	G
EB-439a	.650	.5285	58,660	92,200	.029	.010	4.30	9.38	4	.0938	.4347	1.50	81.3	C
EB-439b	.650	.5285	52,150	98,800	.029	.009	4.30	9.38	4	.0844	.4441	1.50	83.5	C

Table XIII—Continued

[Stiffener pitch=2.50 inches. Stiffener depth, D=0.500 inch]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener width (W-inches)	Percent reinforcement	Type of failure
					Stiffener (inch)	Sheet (inch)								
EB-440a	1.298	0.5280	44,080	83,400	0.030	0.009	8.60	9.36	4	0.0843	0.4437	1.50	83.0	G
EB-440b	1.298	.5300	45,430	85,700	.030	.010	8.56	9.40	4	.0940	.4360	1.50	82.4	C
EB-441a	1.933	.5240	38,090	72,650	.029	.009	12.90	9.43	4	.0848	.4392	1.50	83.0	G
EB-441b	1.933	.5250	40,890	78,000	.030	.009	12.89	9.34	4	.0840	.4410	1.50	83.0	G
EB-442a	.800	.6050	66,120	109,300	.030	.029	4.62	8.65	4	.2508	.3542	.75	55.0	H
EB-442b	.802	.6060	66,310	109,300	.030	.029	4.62	8.64	4	.2505	.3555	.75	55.0	H
EB-443a	1.612	.6105	59,850	97,900	.030	.030	9.23	8.64	4	.2592	.3513	.75	53.9	G
EB-443b	1.625	.6100	59,830	97,900	.030	.030	9.31	8.67	4	.2601	.3499	.75	53.8	G
EB-444a	2.414	.6090	41,960	68,900	.030	.030	13.86	8.61	4	.2583	.3507	.75	53.9	G
EB-444b	2.421	.6100	50,730	83,250	.030	.030	13.87	8.63	4	.2589	.3511	.75	53.9	G
EB-445a	.835	.6360	66,620	104,700	.029	.029	4.59	8.90	4	.2580	.3780	1.00	56.6	J
EB-445b	.840	.6385	64,610	101,300	.030	.030	4.60	8.88	4	.2664	.3721	1.00	55.4	J
EB-446a	1.674	.6350	64,030	100,700	.030	.028	9.20	8.84	4	.2475	.3885	1.00	58.1	G
EB-446b	1.678	.6380	62,100	97,400	.030	.029	9.20	8.84	4	.2560	.3820	1.00	56.8	G
EB-447a	2.545	.6455	54,830	84,900	.030	.030	13.79	8.87	4	.2661	.3794	1.00	55.9	G
EB-447b	2.550	.6450	50,170	77,800	.029	.029	13.81	8.90	4	.2580	.3870	1.00	57.1	G
EB-448a	.881	.6920	71,650	103,000	.030	.030	4.50	9.22	4	.2766	.4154	1.25	58.1	C
EB-448b	.862	.6850	69,770	101,900	.030	.029	4.40	9.14	4	.2650	.4200	1.25	59.1	C
EB-449a	1.732	.6840	57,320	83,800	.030	.030	8.86	9.14	4	.2742	.4098	1.25	57.7	G
EB-449b	1.749	.6870	62,530	91,000	.030	.030	8.90	9.14	4	.2742	.5128	1.25	58.0	G
EB-450a	2.605	.6820	54,820	80,300	.030	.030	13.33	9.14	4	.2742	.4078	1.25	57.6	G
EB-450b	2.617	.6380	68,460	85,000	.028	.032	13.30	9.22	4	.2950	.3930	1.25	55.0	G
EB-451a	.905	.7355	67,130	91,300	.030	.030	4.30	9.43	4	.2829	.4526	1.50	60.1	J
EB-451b	.896	.7290	68,380	93,800	.031	.030	4.30	9.41	4	.2823	.4467	1.50	59.8	J
EB-452a	1.798	.7330	62,120	84,750	.030	.030	8.58	9.44	4	.2832	.4498	1.50	60.0	G
EB-452b	1.782	.7260	55,000	75,750	.030	.030	8.58	9.42	4	.2826	.4434	1.50	59.7	J
EB-453a	2.694	.7300	59,180	81,100	.030	.029	12.90	9.46	4	.2743	.4557	1.50	61.0	J
EB-453b	2.688	.7290	40,000	54,800	.030	.029	12.90	9.44	4	.2737	.4553	1.50	61.1	C
EB-454a	1.020	.7795	82,000	105,200	.030	.049	4.57	8.68	4	.4250	.3545	.75	42.0	J
EB-454b	1.013	.7635	88,775	116,300	.030	.050	4.64	8.64	4	.4320	.3315	.75	39.8	H
EB-455a	2.063	.7800	65,000	83,400	.030	.049	9.25	8.66	4	.4245	.3555	.75	42.0	J
EB-455b	2.057	.7770	71,090	91,500	.030	.050	9.25	8.62	4	.4310	.3460	.75	40.8	G
EB-456a	3.094	.7800	66,240	84,900	.030	.049	13.87	8.70	4	.4260	.3540	.75	41.9	G
EB-456b	3.107	.7825	64,020	81,800	.030	.049	13.88	8.73	4	.4275	.3550	.75	42.0	G
EB-457a	1.068	.8160	60,000	73,500	.030	.050	4.58	8.90	4	.4450	.3710	1.00	42.6	J
EB-457b	1.061	.8150	75,000	92,000	.030	.049	4.55	8.92	4	.4370	.3780	1.00	43.6	J
EB-458a	2.142	.8150	87,670	107,600	.030	.050	9.19	8.92	4	.4460	.3690	1.00	42.5	H
EB-458b	2.130	.8105	83,180	102,600	.030	.049	9.19	8.91	4	.4360	.3745	1.00	43.3	H
EB-459a	3.216	.8140	54,960	67,500	.029	.049	13.81	8.92	4	.4370	.3770	1.00	43.4	J
EB-459b	3.228	.8200	72,530	88,500	.030	.049	13.76	8.98	4	.4400	.3800	1.00	43.7	G
EB-460a	1.090	.8550	90,450	105,800	.030	.049	4.46	9.23	4	.4520	.4030	1.25	45.2	H
EB-460b	1.083	.8535	90,850	106,400	.030	.049	4.44	9.17	4	.4495	.4040	1.25	45.2	H
EB-461a	2.175	.8560	84,490	98,700	.030	.049	8.89	9.16	4	.4490	.4070	1.25	45.3	H
EB-461b	2.175	.8550	75,930	88,900	.030	.049	8.90	9.16	4	.4490	.4060	1.25	45.3	J
EB-462a	3.238	.8500	62,000	72,900	.030	.048	13.32	9.16	4	.4400	.4100	1.25	46.0	J
EB-462b	3.316	.8700	60,350	69,300	.030	.048	13.33	9.49	4	.4555	.4145	1.25	46.3	G
EB-463a	1.113	.9080	90,890	100,100	.030	.050	4.29	9.40	4	.4700	.4380	1.50	46.6	J
EB-463b	1.115	.9100	78,890	86,700	.030	.050	4.29	9.41	4	.4705	.4395	1.50	46.7	J
EB-464a	2.240	.9125	82,430	90,300	.030	.050	8.58	9.40	4	.4700	.4425	1.50	47.0	J
EB-464b	2.236	.9095	82,475	90,700	.030	.050	8.59	9.41	4	.4705	.4390	1.50	46.7	H
EB-465a	3.377	.9150	50,000	54,650	.031	.049	12.90	9.50	4	.4655	.4495	1.50	47.9	J
EB-465b	3.372	.9135	60,000	65,700	.031	.050	12.90	9.44	4	.4720	.4415	1.50	47.0	J
EB-466a	.945	.7140	100,200	140,200	.050	.010	4.62	8.77	4	.0877	.6263	.75	86.1	G
EB-466b	.950	.7175	102,000	142,300	.050	.010	4.62	8.74	4	.0874	.6301	.75	86.2	G
EB-467a	1.900	.7180	78,400	109,200	.050	.010	9.25	8.72	4	.0872	.6308	.75	86.2	G
EB-467b	1.903	.7190	77,600	108,000	.050	.010	9.23	8.75	4	.0875	.6315	.75	86.2	J
EB-468a	2.837	.7145	61,020	85,500	.050	.010	13.88	8.74	4	.0874	.6271	.75	86.2	G
EB-468b	2.837	.7145	61,020	85,500	.050	.010	13.88	8.74	4	.0874	.6271	.75	86.2	G
EB-469a	.989	.7610	102,800	135,000	.050	.010	4.54	8.97	4	.0897	.6713	1.00	87.0	G
EB-469b	.994	.7610	101,200	132,900	.050	.010	4.56	8.96	4	.0896	.6714	1.00	87.0	J
EB-470a	1.995	.7595	76,200	100,300	.050	.010	9.18	8.99	4	.0899	.6696	1.00	87.0	J
EB-470b	2.003	.7605	79,000	103,900	.050	.010	9.21	8.94	4	.0894	.6711	1.00	87.0	J
EB-471a	3.002	.7610	47,000	61,750	.049	.010	13.78	8.95	4	.0895	.6715	1.00	87.0	J
EB-471b	3.000	.7605	52,000	68,400	.050	.009	13.79	8.94	4	.0805	.6800	1.00	88.5	J
EB-472a	1.033	.8140	100,700	123,700	.050	.010	4.44	9.21	4	.0921	.7219	1.25	87.8	J
EB-472b	1.031	.8150	100,000	122,700	.050	.010	4.42	9.25	4	.0925	.7225	1.25	87.8	J
EB-473a	2.072	.8150	70,000	85,900	.050	.010	8.89	9.26	4	.0926	.7224	1.25	87.8	J
EB-473b	2.085	.8200	88,190	107,400	.050	.010	8.90	9.26	4	.0926	.7274	1.25	87.8	H
EB-474a	3.096	.8130	48,820	60,000	.050	.010	13.31	9.16	4	.0916	.7214	1.25	87.8	J
EB-474b	3.075	.8065	68,300	84,500	.050	.009	13.32	9.16	4	.0824	.7241	1.25	88.1	G
EB-475a	1.066	.8680	96,300	111,000	.050	.009	4.29	9.43	4	.0854	.7826	1.50	89.6	J
EB-475b	1.074	.8750	104,700	119,700	.050	.009	4.30	9.51	4	.0856	.7894	1.50	89.6	J
EB-476a	2.132	.8650	85,400	98,600	.050	.009	8.61	9.54	4	.0858	.7792	1.50	89.8	J
EB-476b	2.126	.8690	82,100	83,000	.050	.009	8.56	9.50	4	.0855	.7835	1.50	89.5	J
EB-477a	3.194	.8665	52,000	60,000	.050	.009	12.89	9.52	4	.0857	.7808	1.50	89.5	J
EB-477b	3.206	.8700	68,000	78,200	.049	.009	12.90	9.53	4	.0857	.7843	1.50	89.5	J
EB-478a	1.162	.8775	111,550	127,100	.050	.030	4.62	8.76	4	.2628	.6147	.75	67.2	F
EB-478b	1.165	.8800	110,400	125,600	.050	.030	4.62	8.74	4	.2622	.6178	.75	67.3	F
EB-479a	2.335	.8840	92,700	105,000	.050	.030	9.24	8.74	4	.2628	.6212	.75	67.4	G
EB-479b	2.334	.8835	92,900	105,200	.050	.030	9.24	8.76	4	.2628	.6207	.75	67.4	G
EB-480a	3.500	.8810	75,200	85,400	.050	.030	13.88	8.72	4	.2616	.6194	.75	67.4	G
EB-480b	3.519	.8810	73,100	82,900	.050	.030	13.94	8.76	4	.2628	.6182	.75	67.3	G
EB-481a	1.219	.9350	114,500	122,500	.050	.030	4.56	8.90	4	.2670	.6680	1.00	69.0	G
EB-481b	1.220	.9355	96,700	103,400	.050	.030	4.56	9.00	4	.2700	.6655	1.00	69.0	J
EB-482a	2.476	.9405	91,500	97,300	.050	.030	9.20	8.90	4	.2670	.6735	1.00	69.2	G
EB-482b	2.467	.9380	94,500	100,800	.050	.030	9.19	8.90	4	.2670	.6710	1.00	69.2	G
EB-483a	3.789	.9605	78,000	81,200	.050	.032	13.78	9.01	4	.2880	.6725	1.00	67.8	G
EB-483b	3.744	.9500	84,700	89,200	.050	.030	13.78	8.98	4	.2694	.6806	1.00	69.5	G
EB-484a	1.282	1.0090	114,700	113,700	.050	.030	4.44	9.25	4	.2775	.7315	1.25	70.9	J
EB-484b	1.260	.9960	108,900	109,300	.040	.030	4.42	9.22	4	.2766	.7194	1.25	70.6	J
EB-485a	2.550	1.0030	110,800	110,600	.050	.030	8.89	9.14	4	.2742	.7288	1.25	70.9	J

Table XIII—Continued

[Stiffener pitch=2.50 inches. Stiffener depth, D=0.500 inch]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener width (W-inches)	Percent reinforcement	Type of failure
					Stiffener (inch)	Sheet (inch)								
EB-485b	2.558	1.0040	111,400	111,000	.050	.031	8.90	9.19	4	.2865	.7175	1.25	69.8	J
EB-486a	3.823	1.0020	93,700	93,500	.050	.030	13.34	9.27	4	.2781	.7239	1.25	70.7	G
EB-486b	3.822	1.0020	86,000	85,900	.050	.030	13.34	9.27	4	.2781	.7239	1.25	70.7	G
EB-487a	1.306	1.0670	119,100	111,600	.050	.031	4.28	9.49	4	.2940	.7730	1.50	71.4	J
EB-487b	1.311	1.0650	124,800	117,200	.050	.031	4.30	9.57	4	.2965	.7685	1.50	71.2	J
EB-488a	2.626	1.0690	------	------	.050	.030	8.60	9.47	4	.2841	.7849	1.50	72.2	---
EB-488b	2.616	1.0640	99,100	93,100	.050	.031	8.59	9.50	4	.2945	.7695	1.50	71.3	J
EB-489a	3.926	1.0650	95,600	89,800	.050	.031	12.89	9.50	4	.2945	.7705	1.50	71.3	J
EB-489b	3.939	1.0680	85,900	80,400	.050	.031	12.90	9.56	4	.2965	.7715	1.50	71.2	J
EB-490a	1.405	1.0620	123,000	115,900	.050	.050	4.62	8.77	4	.4385	.6235	.75	55.5	J
EB-490b	1.438	1.0875	146,600	134,800	.050	.053	4.62	8.78	4	.4650	.6225	.75	54.0	H
EB-491a	2.815	1.0650	114,400	107,400	.050	.049	9.24	8.76	4	.4290	.6360	.75	56.5	J
EB-491b	2.821	1.0680	105,800	99,100	.050	.049	9.24	8.78	4	.4300	.6380	.75	56.5	J
EB-492a	4.238	1.0680	90,600	84,900	.050	.050	13.87	8.78	4	.4390	.6290	.75	55.8	G
EB-492b	4.238	1.0675	92,100	86,300	.050	.050	13.88	8.80	4	.4400	.6275	.75	55.6	G
EB-493a	1.460	1.1150	135,100	121,100	.050	.049	4.58	8.98	4	.4400	.6750	1.00	58.0	J
EB-493b	1.467	1.1160	135,500	121,600	.050	.049	4.60	8.94	4	.4380	.6780	1.00	58.1	J
EB-494a	2.954	1.1225	122,300	109,000	.050	.050	9.20	8.98	4	.4490	.6735	1.00	57.4	G
EB-494b	2.935	1.1160	121,800	109,300	.050	.050	9.20	8.97	4	.4485	.6675	1.00	57.1	J
EB-495a	4.386	1.1080	102,200	92,100	.050	.049	13.83	8.87	4	.4350	.6730	1.00	57.8	G
EB-495b	4.395	1.1135	102,800	92,300	.050	.049	13.79	8.96	4	.4390	.6745	1.00	57.9	G
EB-496a	1.495	1.1680	140,500	120,200	.050	.049	4.48	9.28	4	.4550	.7130	1.25	59.2	J
EB-496b	1.474	1.1630	129,500	111,200	.050	.049	4.42	9.26	4	.4540	.7090	1.25	59.2	J
EB-497a	2.982	1.1760	126,000	107,100	.050	.049	8.86	9.24	4	.4530	.7230	1.25	59.6	G
EB-497b	2.984	1.1730	118,100	100,700	.050	.049	8.90	9.22	4	.4520	.7210	1.25	59.5	J
EB-498a	4.491	1.1770	114,600	97,300	.050	.049	13.34	9.27	4	.4545	.7225	1.25	59.5	G
EB-498b	4.491	1.1775	109,500	93,000	.050	.049	13.33	9.28	4	.4550	.7225	1.25	59.5	G
EB-499a	1.531	1.2435	126,600	101,800	.050	.050	4.30	9.49	4	.4745	.7690	1.50	60.6	J
EB-499b	1.531	1.2480	137,100	100,800	.050	.050	4.29	9.52	4	.4760	.7720	1.50	60.6	J
EB-500a	3.072	1.2430	114,100	91,800	.050	.050	8.64	9.49	4	.4745	.7685	1.50	60.5	J
EB-500b	3.062	1.2460	117,200	94,100	.050	.050	8.60	9.50	4	.4750	.7710	1.50	60.6	J
EB-501a	4.600	1.2505	106,200	84,900	.050	.050	12.87	9.49	4	.4745	.7760	1.50	60.8	J
EB-501b	4.595	1.2495	100,700	80,700	.050	.050	12.87	9.51	4	.4755	.7740	1.50	60.8	J

Table XIV

[Stiffener pitch=2.50 inches]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener width and depth (W and D inches)	Percent reinforcement	Type of failure
					Stiffener (inch)	Sheet (inch)								
EC-502a	0.418	0.2125	11,390	53,600	0.009	0.009	6.88	8.66	4	0.0780	0.1345	0.75	59.9	H
EC-502b	.422	.2140	11,970	55,900	.009	.009	6.90	8.64	4	.0776	.1364	.75	60.2	H
EC-503a	.845	.2143	10,670	49,800	.009	.010	13.78	8.68	4	.0868	.1275	.75	56.1	A
EC-503b	.882	.2233	11,600	51,950	.010	.010	13.79	8.54	4	.0854	.1379	.75	58.0	A
EC-504a	1.375	.2322	10,880	46,800	.010	.010	20.68	8.64	4	.0864	.1458	.75	59.3	A
EC-504b	1.266	.2135	10,850	50,850	.010	.010	20.70	8.71	4	.0871	.1264	.75	55.8	F
EC-505a	.635	.2435	10,560	43,300	.010	.010	9.12	8.88	4	.0888	.1547	1.00	60.7	H
EC-505b	.632	.2408	10,660	44,200	.009	.010	9.18	8.65	4	.0865	.1543	1.00	60.7	H
EC-506a	1.246	.2400	10,100	42,100	.009	.010	18.15	8.80	4	.0880	.1520	1.00	60.4	G
EC-506b	1,265	.2415	10,300	42,600	.009	.009	18.32	8.85	4	.0796	.1619	1.00	64.3	H
EC-507a	1.889	.2400	10,070	41,900	.009	.010	27.44	8.86	4	.0886	.1514	1.00	60.3	F
EC-507b	1.901	.2415	9,550	39,500	.009	.010	27.48	8.92	4	.0892	.1523	1.00	60.4	A
EC-508a	.866	.2670	9,600	35,950	.009	.009	11.34	9.12	4	.0820	.1850	1.25	67.3	C
EC-508b	.856	.2440	9,580	39,200	.009	.009	12.25	9.11	4	.0820	.1620	1.25	64.2	F
EC-509a	1.743	.2685	9,400	35,000	.009	.009	22.69	9.17	4	.0825	.1860	1.25	67.4	C
EC-509b	1.717	.2655	9,510	35,800	.009	.009	22.62	9.08	4	.0816	.1839	1.25	67.1	C
EC-510a	2.591	.2583	8,800	33,050	.009	.009	35.02	9.19	4	.0826	.1757	1.25	66.1	C
EC-510b	2.586	.2583	8,300	32,100	.009	.009	35.00	9.17	4	.0825	.1758	1.25	66.1	C
EC-511a	1.282	.3330	11,540	34,600	.011	.009	13.46	9.46	4	.0851	.2479	1.50	73.4	C
EC-511b	1.290	.3345	11,300	33,750	.009	.009	13.47	9.39	4	.0845	.2500	1.50	73.5	C
EC-512a	2.609	.3380	11,000	32,550	.010	.010	27.02	9.33	4	.0933	.2447	1.50	71.0	C
EC-512b	2.621	.3395	11,000	32,400	.009	.010	26.98	9.38	4	.0938	.2457	1.50	71.1	C
EC-513a	3.890	.3360	10,250	26,500	.009	.010	40.50	9.38	4	.0938	.2422	1.50	70.7	G
EC-513b	3.900	.3370	10,100	26,400	.009	.010	40.48	9.39	4	.0939	.2431	1.50	71.0	G
EC-514a	1.509	.3820	19,560	51,200	.009	.029	13.79	8.66	4	.2510	.1310	.75	31.2	A
EC-514b	1.512	.3835	21,880	57,100	.009	.030	13.78	8.66	4	.2598	.1237	.75	29.2	A
EC-515a	2.255	.3810	20,100	52,700	.009	.029	20.69	8.63	4	.2500	.1310	.75	31.1	G
EC-515b	2.336	.3945	18,570	47,000	.009	.031	20.68	8.62	4	.2675	.1270	.75	29.0	E
EC-516a	1.094	.4180	19,120	45,750	.009	.030	9.15	8.93	4	.2679	.1501	1.00	33.3	H
EC-516b	1.087	.4150	17,490	42,150	.009	.030	9.16	8.88	4	.2664	.1486	1.00	33.2	H
EC-517a	2.177	.4155	18,000	43,300	.009	.030	18.29	8.94	4	.2682	.1473	1.00	32.9	C
EC-517b	2.379	.4540	20,500	45,100	.009	.031	18.32	8.92	4	.2797	.1743	1.00	35.8	C
EC-517c	2.178	.4155	18,550	44,600	.009	.030	18.30	8.89	4	.2667	.1488	1.00	33.2	C
EC-518a	3.273	.4160	17,660	42,400	.009	.029	27.51	8.85	4	.2565	.1595	1.00	35.5	C
EC-518b	3.613	.4580	22,330	48,750	.011	.030	27.57	8.89	4	.2667	.1913	1.00	38.9	H
EC-519a	1.468	.4530	17,970	39,700	.009	.030	11.33	9.13	4	.2739	.1791	1.25	37.4	H
EC-519b	1.619	.5000	21,300	42,600	.010	.030	11.31	9.32	4	.2796	.2204	1.25	42.4	H
EC-520a	2.953	.4545	11,000	24,700	.009	.039	22.70	9.19	4	.2757	.1788	1.25	37.4	J

TABLE XIV—Continued

[Stiffener pitch=2.50 inches]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness		Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener width and depth (W and D inches)	Percent reinforced	Type of failure
					Stiffener (inch)	Sheet (inch)								
EC-520b	2.965	0.4560	15,220	33,400	0.009	0.030	22.69	9.13	4	0.2739	0.1821	1.25	37.8	C
EC-521a	4.420	.4545	17,300	38,900	.009	.029	34.02	9.15	4	.2655	.1890	1.25	39.4	H
EC-521b	4.400	.4520	17,000	37,600	.008	.029	34.02	9.08	4	.2635	.1885	1.25	39.4	H
EC-522a	1.930	.5000	17,360	34,720	.009	.029	13.50	9.43	4	.2735	.2265	1.50	43.9	C
EC-522b	1.941	.5030	16,850	33,500	.009	.029	13.50	9.38	4	.2720	.2310	1.50	44.4	C
EC-523a	3.839	.4965	17,140	34,500	.010	.029	27.04	9.43	4	.2735	.2230	1.50	43.5	C
EC-523b	3.889	.5030	17,900	35,600	.010	.029	27.02	9.50	4	.2755	.2275	1.50	44.0	C
EC-524a	5.813	.5025	16,800	33,450	.009	.030	40.48	9.34	4	.2802	.2223	1.50	42.6	C
EC-524b	5.799	.5005	17,350	34,650	.009	.029	40.50	9.37	4	.2720	.2285	1.50	44.1	G
EC-525a	1.110	.5640	33,670	59,650	.009	.050	6.89	8.75	4	.4375	.1265	.75	20.2	H
EC-525b	1.112	.5650	30,110	53,250	.009	.050	6.88	8.72	4	.4360	.1290	.75	20.5	H
EC-526a	2.224	.5640	33,080	58,700	.009	.050	13.80	8.72	4	.4360	.1280	.75	20.4	A
EC-526b	2.200	.5590	18,000	32,200	.009	.049	13.77	8.70	4	.4260	.1330	.75	21.9	H
EC-527a	3.347	.5655	23,250	41,100	.010	.049	20.69	8.65	4	.4240	.1415	.75	22.4	G
EC-528a	1.573	.6000	22,150	36,900	.009	.048	9.17	8.90	4	.4270	.1730	1.00	26.5	H
EC-528b	1.563	.5990	17,900	29,900	.009	.048	9.13	8.91	4	.4275	.1715	1.00	26.3	H
EC-529a	3.232	.6165	24,140	39,200	.011	.049	18.32	8.87	4	.4350	.1815	1.00	27.0	H
EC-529b	3.254	.6220	20,450	32,850	.011	.049	18.28	8.91	4	.4360	.1860	1.00	27.5	G
EC-530a	4.803	.6105	28,520	46,600	.010	.049	27.50	8.90	4	.4360	.1745	1.00	26.2	C
EC-530b	4.808	.6110	31,000	50,800	.011	.049	27.50	8.95	4	.4390	.1720	1.00	26.0	C
EC-531a	2.149	.6620	36,550	55,200	.010	.049	11.34	9.09	4	.4450	.2170	1.25	30.7	C
EC-531b	2.054	.6325	19,000	30,000	.009	.049	11.35	9.18	4	.4500	.1825	1.25	27.1	J
EC-532a	4.363	.6715	31,215	46,450	.010	.050	22.68	9.26	4	.4630	.2085	1.25	29.4	C
EC-532b	4.153	.6390	26,500	41,500	.009	.049	22.70	9.26	4	.4540	.1850	1.25	27.4	C
EC-533a	6.211	.6370	22,950	36,050	.009	.049	34.04	9.18	4	.4500	.1870	1.25	27.6	C
EC-533b	6.445	.6610	29,000	43,850	.010	.049	34.02	9.18	4	.4500	.2110	1.25	30.1	G
EC-534a	2.640	.6810	28,830	42,300	.009	.049	13.54	9.37	4	.4590	.2220	1.50	31.2	H
EC-534b	2.644	.6850	30,600	44,650	.010	.049	13.50	9.42	4	.4610	.2240	1.50	31.4	H
EC-535a	5.342	.6910	28,790	41,900	.009	.050	27.00	9.48	4	.4740	.2170	1.50	30.3	C
EC-535b	5.325	.6910	24,440	35,400	.010	.049	26.96	9.40	4	.4610	.2300	1.50	31.9	C
EC-536a	8.107	.7000	27,300	39,000	.009	.051	40.50	9.46	4	.3820	.2180	1.50	29.9	G
EC-536b	7.877	.6800	23,650	34,800	.009	.049	40.49	9.40	4	.4610	.2190	1.50	30.9	G
EC-537a	.979	.4980	64,400	129,300	.030	.010	6.87	8.64	4	.0864	.4116	.75	80.4	H
EC-537b	.979	.4970	62,770	126,300	.030	.009	6.88	8.63	4	.0775	.4195	.75	82.2	G
EC-538a	1.953	.4955	55,390	111,800	.030	.009	13.78	8.63	4	.0775	.4180	.75	82.2	G
EC-538b	1.959	.4970	52,670	106,000	.030	.010	13.78	8.60	4	.0860	.4110	.75	80.4	G
EC-539a	2.938	.4960	39,500	79,600	.030	.010	20.70	8.67	4	.0867	.4093	.75	80.3	G
EC-539b	2.933	.4965	41,700	83,900	.030	.010	20.65	8.62	4	.0862	.4103	.75	80.3	G
EC-540a	1.555	.5935	69,330	117,000	.030	.010	9.15	8.85	4	.0886	.5049	1.00	83.5	G
EC-540b	1.556	.5936	71,800	121,000	.030	.010	9.15	8.85	4	.0885	.5051	1.00	83.5	G
EC-541a	3.089	.5900	48,450	82,100	.030	.010	18.29	8.86	4	.0886	.5014	1.00	83.3	G
EC-541b	3.106	.5930	63,360	106,900	.030	.010	18.31	8.92	4	.0892	.5038	1.00	83.4	G
EC-542a	4.658	.5920	48,010	81,100	.030	.009	27.48	8.92	4	.0802	.5118	1.00	85.0	G
EC-542b	4.638	.5895	41,210	87,000	.029	.009	27.50	8.84	4	.0795	.5100	1.00	85.0	G
EC-543a	2.153	.6725	69,520	103,400	.029	.009	11.20	9.12	4	.0821	.5904	1.25	86.8	H
EC-543b	2.180	.6715	67,470	100,300	.030	.009	11.34	9.14	4	.0822	.5893	1.25	86.8	H
EC-544a	4.365	.6720	65,115	96,850	.330	.009	22.69	9.10	4	.0819	.5901	1.25	86.8	H
EC-544b	4.336	.6705	51,000	76,000	.030	.009	22.60	9.12	4	.0821	.5884	1.25	86.8	J
EC-545a	6.663	.6830	53,800	78,800	.029	.009	34.13	9.24	4	.0831	.5999	1.25	87.0	G
EC-545b	6.570	.6750	76,350	76,350	.030	.009	34.04	9.14	4	.0822	.5928	1.25	86.9	J
EC-546a	3.041	.7880	48,000	60,900	.031	.009	13.48	9.43	4	.0849	.7031	1.50	88.7	J
EC-546b	3.044	.7890	62,315	79,000	.031	.009	13.50	9.46	4	.0851	.7039	1.50	88.7	G
EC-547a	6.102	.7900	63,475	80,300	.031	.009	27.00	9.44	4	.0850	.7050	1.50	88.7	H
EC-547b	6.096	.7885	60,300	76,500	.031	.009	27.03	9.35	4	.0841	.7044	1.50	88.7	J
EC-548a	8.990	.7765	56,270	72,500	.029	.009	40.49	9.45	4	.0850	.6915	1.50	88.5	G
EC-548b	9.151	.7880	56,575	72,000	.031	.009	40.55	9.44	4	.0850	.7030	1.50	88.6	J
EC-549a	1.318	.6700	76,770	114,600	.030	.030	6.88	8.70	4	.2610	.4090	.75	57.7	C
EC-549b	1.327	.6750	74,290	110,000	.030	.030	6.86	8.62	4	.2586	.4164	.75	58.1	C
EC-550a	2.627	.6685	64,240	96,100	.030	.030	13.75	8.63	4	.2589	.4096	.75	57.7	G
EC-550b	2.647	.6700	68,850	102,700	.030	.030	13.82	8.65	4	.2595	.4105	.75	57.7	G
EC-551a	3.932	.6665	58,700	88,100	.030	.029	20.60	8.69	4	.2520	.4145	.75	58.8	G
EC-551b	3.976	.6720	49,600	73,800	.030	.030	20.64	8.72	4	.2616	.4104	.75	57.8	G
EC-552a	2.005	.7630	83,950	110,200	.030	.029	9.16	8.99	4	.2610	.5020	1.00	63.3	H
EC-552b	2.006	.7625	80,770	106,000	.030	.029	9.20	8.90	4	.2580	.5045	1.00	63.5	J
EC-553a	4.025	.7690	75,750	98,500	.030	.029	18.31	8.93	4	.2590	.5100	1.00	63.7	H
EC-553b	4.002	.7625	74,270	97,400	.030	.029	18.34	8.91	4	.2580	.5045	1.00	63.5	G
EC-554a	6.026	.7650	61,280	80,100	.030	.029	27.48	8.94	4	.2590	.5060	1.00	63.5	G
EC-554b	6.035	.7660	60,770	79,400	.030	.029	27.50	8.95	4	.2595	.5065	1.00	63.5	J
EC-555a	2.774	.8590	82,450	95,900	.029	.030	11.30	9.14	4	.2742	.5848	1.25	66.1	H
EC-555b	2.753	.8555	83,080	97,100	.030	.030	11.24	9.10	4	.2730	.5825	1.25	66.0	H
EC-556a	5.569	.8600	76,820	89,300	.030	.030	22.66	9.11	4	.2733	.5867	1.25	66.2	J
EC-556b	5.584	.8590	71,750	83,600	.030	.030	22.70	9.12	4	.2736	.5854	1.25	66.1	J
EC-557a	8.394	.8605	58,000	67,400	.030	.030	34.07	9.12	4	.2736	.5869	1.25	66.2	J
EC-557b	8.352	.8570	73,790	86,100	.029	.029	34.04	9.09	4	.2635	.5935	1.25	67.1	G
EC-558a	3.804	.9850	80,280	81,500	.031	.029	13.50	9.42	4	.2733	.7117	1.50	71.0	C
EC-558b	3.812	.9865	81,750	82,900	.030	.030	13.48	9.50	4	.2850	.7015	1.50	70.0	C
EC-559a	7.610	.9850	80,130	81,400	.030	.030	27.02	9.50	4	.2850	.7000	1.50	70.0	H
EC-559b	7.562	.9785	--------	--------	.031	.029	27.00	9.43	4	.2735	.7050	1.50	70.8	------
EC-560a	11.321	.9780	50,000	51,100	.030	.029	40.47	9.37	4	.2720	.7060	1.50	70.8	J
EC-560b	11.431	.9880	74,600	75,500	.030	.030	40.48	9.50	4	.2850	.7030	1.50	70.0	H
EC-561a	1.645	.8350	93,540	112,100	.031	.049	6.89	8.62	4	.4220	.4130	.75	45.7	H
EC-561b	1.635	.8310	87,000	104,600	.030	.049	6.88	8.61	4	.4220	.4090	.75	45.4	J
EC-562a	3.282	.8315	79,440	95,400	.030	.049	13.79	8.64	4	.4235	.4080	.75	45.4	J
EC-562b	3.282	.8320	91,090	109,400	.030	.049	13.78	8.65	4	.4240	.4080	.75	45.4	G
EC-563a	4.932	.8330	80.200	96,400	.030	.049	20.69	8.65	4	.4240	.4090	.75	45.4	G
EC-563b	4.916	.8300	75,000	90,400	.030	.049	20.68	8.69	4	.4255	.4045	.75	45.2	G
EC-564a	2.482	.9460	109,700	115,900	.030	.050	9.16	8.88	4	.4440	.5020	1.00	50.0	H
EC-564b	2.488	.9520	106,600	111,800	.030	.050	9.14	9.00	4	.4500	.5020	1.00	50.0	J

Table XIV—Continued

[Stiffener pitch=2.50 inches]

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness: Stiffener (inch)	Thickness: Sheet (inch)	Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener width and depth (W and D inches)	Percent reinforcement	Type of failure
EC-565a	4.947	0.9465	102,550	108,300	0.030	0.050	18.47	8.96	4	0.4480	0.4985	1.00	49.9	J
EC-565b	4.979	.9500	106,300	112,100	.030	.050	18.32	8.97	4	.4485	.5015	1.00	50.0	H
EC-566a	7.472	.9505	87,400	91,900	.030	.050	27.49	8.95	4	.4475	.5030	1.00	50.2	G
EC-566b	7.391	.9400	87,500	93,100	.030	.050	27.48	8.90	4	.4450	.4950	1.00	49.7	G
EC-567a	3.363	1.0410	50,000	48,000	.030	.050	11.31	9.14	4	.4570	.5840	1.25	53.9	J
EC-567b	3.359	1.0380	98,450	94,900	.030	.049	11.33	9.14	4	.4480	.5900	1.25	54.6	J
EC-568a	6.772	1.0430	------	------	.030	.050	22.70	9.14	4	.4570	.5860	1.25	54.0	----
EC-568b	6.755	1.0410	96,000	92,200	.030	.049	22.70	9.14	4	.4480	.5930	1.25	54.7	J
EC-569a	10.110	1.0400	89,800	86,400	.029	.049	34.01	9.19	4	.4500	.5900	1.25	54.6	J
EC-569b	10.129	1.0410	90,000	86,500	.029	.049	34.00	9.20	4	.4505	.5905	1.25	54.6	J
EC-570a	4.492	1.1630	99,700	85,800	.030	.049	13.49	9.45	4	.4630	.7000	1.50	58.9	J
EC-570b	4.488	1.1650	96,700	83,000	.030	.049	13.47	9.42	4	.4610	.7040	1.50	59.0	J
EC-571a	9.007	1.1670	102,900	88,200	.031	.049	27.00	9.42	4	.4610	.7060	1.50	59.1	J
EC-571b	9.031	1.1700	99,900	85,400	.031	.049	26.99	9.50	4	.4650	.7050	1.50	59.1	G
EC-572a	16.534	1.4290	96,800	67,700	.031	.049	40.48	9.50	4	.4650	.9640	1.50	66.3	G
EC-572b	16.500	1.4250	89,600	62,900	.031	.049	40.50	9.44	4	.4620	.9630	1.50	66.3	J
EC-573a	1.600	.8135	101,100	124,300	.050	.009	6.88	8.76	4	.0789	.7346	.75	80.2	J
EC-573b	1.606	.8145	118,700	145,600	.050	.010	6.89	8.78	4	.0878	.7267	.75	88.0	J
EC-574a	3.211	.8145	86,500	106,300	.050	.010	13.79	8.82	4	.0882	.7263	.75	87.7	J
EC-574b	3.198	.8105	97,900	120,800	.050	.009	13.79	8.79	4	.0791	.7314	.75	89.0	G
EC-575a	4.817	.8145	61,150	75,200	.050	.010	20.68	8.78	4	.0878	.7267	.75	88.0	G
EC-575b	4.805	.8140	60,150	73,900	.050	.010	20.64	8.80	4	.0880	.7260	.75	88.0	G
EC-576a	2.506	.9570	113,750	139,700	.050	.010	9.16	9.01	4	.0901	.8669	1.00	89.7	J
EC-576b	2.400	.9150	118,950	130,000	.050	.009	9.17	9.04	4	.0813	.8337	1.00	90.2	J
EC-577a	5.029	.9585	103,850	108,400	.050	.010	18.33	8.99	4	.0809	.8686	1.00	89.7	J
EC-577b	5.087	.9700	106,700	110,000	.050	.010	18.31	8.95	4	.0895	.8805	1.00	89.8	J
EC-578a	7.526	.9560	96,600	101,000	.050	.009	27.50	9.02	4	.0812	.8748	1.00	90.7	G
EC-578b	7.524	.9560	84,800	88,700	.050	.009	27.50	9.00	4	.0810	.8750	1.00	90.7	J
EC-579a	3.621	1.1220	141,700	126,200	.050	.010	11.29	9.16	4	.0916	1.0304	1.25	91.2	J
EC-579b	3.635	1.1200	121,900	108,800	.050	.010	11.34	9.27	4	.0927	1.0273	1.25	91.2	J
EC-580a	7.294	1.1230	109,800	97,800	.050	.010	22.67	9.16	4	.0916	1.0314	1.25	91.2	J
EC-580b	7.247	1.1160	87,600	78,600	.050	.009	22.69	9.22	4	.0830	1.0330	1.25	91.8	J
EC-581a	10.928	1.1250	88,300	78,400	.050	.010	34.00	9.21	4	.0921	1.0329	1.25	91.1	G
EC-581b	11.060	1.1360	30,000	26,400	.050	.011	34.02	9.18	4	.1010	1.0350	1.25	90.5	J
EC-582a	4.869	1.2630	148,300	117,400	.050	.009	13.48	9.55	4	.0860	1.1770	1.50	92.8	J
EC-582b	4.878	1.2640	147,000	117,000	.050	.009	13.49	9.52	4	.0857	1.1783	1.50	93.0	J
EC-583a	9.809	1.2700	115,000	90,500	.050	.009	26.98	9.50	4	.0855	1.1845	1.50	92.9	J
EC-583b	9.817	1.2720	119,300	93,800	.050	.009	27.00	9.48	4	.0853	1.1867	1.50	92.9	J
EC-584a	14.703	1.2700	102,800	81,000	.050	.009	40.45	9.47	4	.0852	1.1848	1.50	92.9	G
EC-584b	14.722	1.2720	102,200	80,300	.050	.010	40.46	9.50	4	.0950	1.1770	1.50	92.2	G
EC-585a	1.961	.9900	120,800	122,200	.050	.030	6.93	8.74	4	.2622	.7278	.75	70.8	J
EC-585b	1.960	.9915	121,100	122,100	.050	.030	6.91	8.76	4	.2628	.7287	.75	70.8	J
EC-586a	3.949	1.0025	107,000	106,800	.050	.031	13.78	8.80	4	.2725	.7300	.75	70.2	G
EC-586b	3.906	.9910	107,700	108,700	.050	.030	13.78	8.80	4	.2626	.7284	.75	70.8	G
EC-587a	5.874	.9935	83,300	83,900	.050	.030	20.67	8.77	4	.2631	.7304	.75	70.9	J
EC-587b	5.930	1.0010	79,500	79,400	.050	.031	20.68	8.77	4	.2720	.7290	.75	70.1	J
EC-588a	2.960	1.1350	144,400	127,300	.050	.030	9.12	9.00	4	.2700	.8650	1.00	74.3	J
EC-588b	2.972	1.1325	140,900	124,300	.050	.029	9.17	9.02	4	.2620	.8705	1.00	75.0	J
EC-589a	5.921	1.1300	119,750	106,000	.050	.029	18.33	8.95	4	.2597	.8703	1.00	75.0	J
EC-589b	5.963	1.140	113,800	99,900	.050	.029	18.31	9.05	4	.2625	.8775	1.00	75.2	J
EC-590a	8.935	1.1330	93,700	82,700	.049	.030	27.51	9.09	4	.2727	.8603	1.00	74.2	G
EC-590b	8.890	1.1300	99,300	87,800	.048	.029	27.46	8.96	4	.2600	.8700	1.00	75.0	G
EC-591a	4.240	1.3060	147,100	112,700	.050	.030	11.35	9.28	4	.2784	1.0276	1.25	77.4	J
EC-591b	4.235	1.3040	164,000	125,700	.050	.030	11.34	9.26	4	.2778	1.0262	1.25	77.4	J
EC-592a	8.493	1.3080	140,400	107,400	.050	.029	22.68	9.36	4	.2715	1.0365	1.25	78.0	J
EC-592b	8.532	1.3130	133,600	101,700	.050	.031	22.68	9.16	4	.2840	1.0290	1.25	76.7	J
EC-593a	12.752	1.3100	113,300	86,500	.050	.029	34.04	9.29	4	.2695	1.0405	1.25	78.1	G
EC-593b	12.972	1.3320	112,800	84,700	.050	.032	34.06	9.13	4	.2920	1.0400	1.25	76.4	G
EC-594a	5.626	1.4630	168,700	115,300	.050	.030	13.46	9.47	4	.2841	1.1789	1.50	79.7	H
EC-594b	5.619	1.4590	168,600	115,500	.050	.030	13.48	9.50	4	.2850	1.1740	1.50	79.5	H
EC-595a	11.297	1.4620	131,200	89,800	.049	.030	27.02	9.48	4	.2844	1.1776	1.50	79.7	J
EC-595b	11.285	1.4610	130,800	89,500	.050	.030	27.01	9.50	4	.2850	1.1760	1.50	79.6	J
EC-596a	16.897	1.4600	120,900	82,800	.050	.029	40.48	9.47	4	.2747	1.1853	1.50	80.2	G
EC-596b	16.887	1.4575	122,600	84,100	.050	.030	40.50	9.47	4	.2841	1.1734	1.50	79.6	G
EC-597a	2.284	1.1600	147,500	127,000	.050	.049	6.88	8.81	4	.4310	.7290	.75	59.8	J
EC-597b	2.300	1.1540	137,350	119,000	.050	.049	6.96	8.82	4	.4320	.7220	.75	59.5	J
EC-598a	4.575	1.1590	124,200	107,200	.050	.049	13.80	8.80	4	.4310	.7280	.75	59.7	J
EC-598b	4.570	1.1600	127,800	110,000	.050	.049	13.78	8.82	4	.4320	.7280	.75	59.7	J
EC-599a	6.861	1.1600	109,800	94,800	.050	.049	20.69	8.78	4	.4300	.7300	.75	59.8	J
EC-599b	7.000	1.1850	118,850	100,300	.050	.052	20.64	8.74	4	.4545	.7305	.75	58.4	J
EC-600a	3.430	1.3080	148,200	113,300	.049	.049	9.17	8.98	4	.4400	.8680	1.00	64.0	J
EC-600b	3.443	1.3120	149,900	114,200	.049	.049	9.17	9.04	4	.4430	.8690	1.00	64.0	J
EC-601a	6.927	1.3190	147,700	112,000	.050	.050	18.34	9.10	4	.4550	.8640	1.00	63.4	J
EC-601b	6.905	1.3160	148,800	113,200	.050	.050	18.34	8.98	4	.4490	.8670	1.00	63.5	J
EC-602a	10.400	1.3225	126,300	95,500	.049	.049	27.50	9.09	4	.4450	.8775	1.00	64.2	G
EC-602b	10.379	1.3200	125,400	95,000	.048	.050	27.49	9.06	4	.4530	.8670	1.00	63.5	G
EC-603a	4.839	1.4910	156,500	105,000	.050	.049	11.34	9.37	4	.4590	1.0320	1.25	67.8	J
EC-603b	4.791	1.4830	142,300	96,000	.050	.049	11.30	9.28	4	.4550	1.0280	1.25	67.7	J
EC-604a	9.710	1.4930	122,300	82,000	.050	.049	22.69	9.37	4	.4590	1.0340	1.25	67.9	J
EC-604b	9.748	1.5040	170,400	113,300	.050	.052	22.64	9.15	4	.4760	1.0280	1.25	66.4	J
EC-605a	14.510	1.4920	119,900	80,400	.049	.050	34.00	9.30	4	.4650	1.0270	1.25	67.3	J
EC-605b	14.502	1.4900	122,200	81,900	.050	.049	34.05	9.27	4	.4545	1.0355	1.25	68.0	J
EC-606a	6.390	1.6580	156,500	94,400	.050	.050	13.49	9.52	4	.4760	1.1820	1.50	70.3	J
EC-606b	6.369	1.6480	192,000	116,600	.050	.050	13.52	9.49	4	.4745	1.1735	1.50	70.1	J
EC-607a	12.727	1.6490	165,500	100,400	.050	.049	26.99	9.50	4	.4655	1.1835	1.50	70.8	J
EC-607b	12.727	1.6480	152,900	92,800	.049	.049	27.01	9.49	4	.4650	1.1830	1.50	70.8	J
EC-608a	19.105	1.6510	122,000	73,900	.049	.049	40.46	9.51	4	.4660	1.1850	1.50	70.6	J
EC-608b	19.077	1.6500	77,400	46,900	.050	.049	40.48	9.51	4	.4660	1.1840	1.50	70.7	J

TABLE XV

Specification no.	Weight (inches)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness: Stiffener (inch)	Thickness: Sheet (inch)	Length (inches)	Width (inches)	Number of stiffeners	Area of sheet	Area of stiffeners	Stiffener depth (D inches)	Percent reinforcement	Type of failure
F-609a	0.590	0.2275	14,260	62,700	0.010	0.010	9.06	8.50	4	0.0850	0.1425	0.50	58.7	G
F-609b	.594	.2280	14,325	63,000	.010	.010	9.10	8.47	4	.0847	.1433	.50	58.9	G
F-610a	1.352	.2620	16,200	61,750	.009	.010	18.05	8.59	4	.0859	.1761	1.00	63.8	G
F-610b	1.360	.2620	15,400	58,700	.009	.010	18.15	8.58	4	.0858	.1762	1.00	63.8	J
F-611a	2.358	.3160	16,300	51,600	.009	.010	26.04	8.49	4	.0849	.2311	1.50	69.8	I
F-611b	2.232	.2998	13,600	45,400	.009	.010	26.01	8.49	4	.0849	.2149	1.50	68.2	I
F-612a	1.010	.3900	26,030	66,650	.010	.030	9.06	8.47	4	.2541	.1359	.50	31.2	A
F-612b	1.000	.3860	24,150	62,500	.010	.030	9.06	8.50	4	.2550	.1310	.50	30.4	A
F-613a	2.228	.4330	24,770	57,200	.009	.031	18.02	8.46	4	.2622	.1708	1.00	35.6	I
F-613b	2.236	.4330	25,020	57,800	.009	.031	18.05	8.44	4	.2618	.1712	1.00	35.5	I
F-614a	3.541	.4740	20,930	44,100	.009	.031	26.08	8.48	4	.2628	.2112	1.50	40.5	I
F-614b	3.583	.4825	19,920	41,200	.009	.031	25.99	8.54	4	.2645	.2180	1.50	41.3	I
F-615a	1.467	.5680	38,480	67,800	.010	.049	9.04	8.47	4	.4150	.1530	.50	23.8	H
F-615b	1.446	.5595	38,610	69,000	.010	.049	9.04	8.47	4	.4150	.1445	.50	22.8	H
F-616a	3.193	.6203	24,050	38,700	.009	.049	17.98	8.53	4	.5180	.2023	1.00	29.2	I
F-616b	3.185	.6160	24,770	40,250	.009	.049	18.04	8.43	4	.4130	.2130	1.00	30.3	I
F-617a	4.816	.6465	29,150	45,050	.009	.050	26.03	8.61	4	.4305	.2160	1.50	30.2	I
F-617b	4.821	.6465	27,740	42,900	.009	.051	26.04	8.53	4	.4350	.2115	1.50	29.3	I
F-618a	1.591	.6105	40,700	66,650	.010	.049	9.10	8.42	4	.4125	.1980	.50	28.8	H
F-618b	1.581	.6090	48,880	80,250	.010	.049	9.07	8.47	4	.4150	.1940	.50	28.4	H
F-619a	3.557	.6885	42,150	61,300	.015	.051	18.04	8.30	4	.4230	.2655	1.00	34.2	I
F-620a	5.550	.7450	41,300	55,400	.014	.051	26.03	8.46	4	.4310	.3140	1.50	38.1	I
F-620b	5.450	.7300	42,700	58,500	.014	.049	26.09	8.46	4	.4150	.3150	1.50	39.2	I

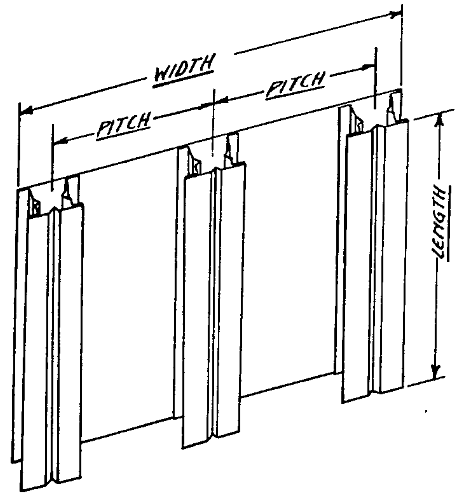
TABLE XVI—*Corrugated stainless steel specimens*

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness: Stiffener (inch)	Thickness: Sheet (inch)	Length (inches)	Width (inches)	Number of corrugations	Area of sheet (square inch)	Area corrugated (square inch)	Pitch (inches)	L/ρ	R/t
I-1a	0.144	0.1215	5,000	41,150	0.010	---------	4.0	8.563	8	---------	0.1215	1.00	22.8	25
I-1b	.139	.1258	7,700	61,200	.010	---------	4.0	8.563	8	---------	.1258	1.00	22.8	25
I-2a	.268	.1170	9,350	79,950	.010	---------	8.0	8.469	8	---------	.1170	1.00	45.6	25
I-2b	.268	.1170	7,900	67,500	.010	---------	8.0	8.469	8	---------	.1170	1.00	45.6	25
I-3a	.400	.1165	10,400	39,400	.010	---------	12.0	8.50	8	---------	.1165	1.00	68.4	25
I-3b	.410	.1195	11,000	92,000	.010	---------	12.0	8.50	8	---------	.1195	1.00	68.4	25
I-4a	.120	.1048	9,330	89,000	.010	---------	4.0	9.50	6	---------	.1048	1.50	22.35	40.5
I-4b	.125	.1092	4,500	41,200	.010	---------	4.0	9.50	6	---------	.1092	1.50	22.35	40.5
I-5a	.250	.1092	6,000	55,000	.010	---------	8.0	9.625	6	---------	.1092	1.50	44.7	40.5
I-5b	.250	.1092	6,250	57,250	.010	---------	8.0	9.625	6	---------	.1092	1.50	44.7	40.5
I-6a	.388	.1131	6,400	56,600	.010	---------	12.0	9.594	6	---------	.1131	1.50	67.1	40.5
I-6b	.374	.1090	7,800	71,500	.010	---------	12.0	9.594	6	---------	.1090	1.50	67.1	40.5
I-7a	.100	.0875	4,330	49,500	.010	---------	4.0	8.50	4	---------	.0875	2.00	22.19	66
I-7b	.100	.0875	3,750	42,900	.010	---------	4.0	8.50	4	---------	.0875	2.00	22.19	66
I-8a	.200	.0874	4,450	50,900	.010	---------	8.0	8.625	4	---------	.0874	2.00	44.38	66
I-8b	.200	.0874	3,900	44,600	.010	---------	8.0	8.625	4	---------	.0874	2.00	44.38	66
I-9a	.300	.0875	3,500	40,000	.010	---------	12.0	8.594	4	---------	.0875	2.00	66.55	66
I-9b	.300	.0875	3,600	41,100	.010	---------	12.0	8.594	4	---------	.0875	2.00	66.55	66
I-10a	.278	.2430	36,300	149,300	.020	---------	4.0	8.469	8	---------	.2430	1.00	22.8	12.5
I-10b	.267	.2335	33,650	149,100	.020	---------	4.0	8.469	8	---------	.2335	1.00	22.8	12.5
I-11a	.550	.2405	37,400	155,400	.020	---------	8.0	8.469	8	---------	.2405	1.00	45.6	12.5
I-11b	.550	.2405	27,100	112,700	.020	---------	8.0	8.469	8	---------	.2405	1.00	45.6	12.5
I-12a	.863	.2515	28,000	111,300	.020	---------	12.0	8.531	8	---------	.2515	1.00	68.4	12.5
I-12b	.826	.2405	33,400	138,800	.020	---------	12.0	8.531	8	---------	.2405	1.00	68.4	12.5
I-13a	.255	.2230	29,900	134,000	.020	---------	4.0	9.531	6	---------	.2230	1.50	22.35	20.3
I-13b	.255	.2230	30,300	135,800	.020	---------	4.0	9.531	6	---------	.2230	1.50	22.35	20.3
I-14a	.533	.2350	26,200	111,300	.020	---------	8.0	9.469	6	---------	.2350	1.50	44.7	20.3
I-14b	.538	.2350	29,650	126,100	.020	---------	8.0	9.469	6	---------	.2350	1.50	44.7	20.3
I-15a	.785	.2290	28,400	124,000	.020	---------	12.0	9.531	6	---------	.2290	1.50	67.1	20.3
I-15b	.795	.2315	28,200	121,700	.020	---------	12.0	9.531	6	---------	.2315	1.50	67.1	20.3
I-16a	.213	.1860	18,500	99,500	.020	---------	4.0	8.469	4	---------	.1860	2.00	22.19	33
I-16b	.213	.1860	18,500	99,500	.020	---------	4.0	8.469	4	---------	.1860	2.00	22.19	33
I-17a	.435	.1900	19,450	102,300	.020	---------	8.0	8.469	4	---------	.1900	2.00	44.38	33
I-17b	.435	.1900	19,800	104,200	.020	---------	8.0	8.469	4	---------	.1900	2.00	44.38	33
I-18a	.660	.1923	19,400	100,900	.020	---------	12.0	8.594	4	---------	.1923	2.00	66.55	33
I-18b	.660	.1923	18,400	195,500	.020	---------	12.0	8.594	4	---------	.1923	2.00	66.55	33
I-19a	.435	.3800	65,600	190,000	.030	---------	4.0	8.531	8	---------	.3800	1.00	22.8	8.3
I-19b	.435	.3800	67,700	196,000	.030	---------	4.0	8.531	8	---------	.3800	1.00	22.8	8.3
I-20a	.855	.3735	69,700	160,000	.030	---------	8.0	8.50	8	---------	.3735	1.00	45.6	8.3
[1] I-20b	.877	.3835	24,000	64,300	.030	---------	8.0	8.50	8	---------	.3835	1.00	45.6	8.3
I-21a	1.366	.3980	50,100	125,800	.030	---------	12.0	8.531	8	---------	.3980	1.00	68.4	8.3
I-21b	1.362	.3970	46,800	117,800	.030	---------	12.0	8.531	8	---------	.3970	1.00	68.4	8.3
I-22a	.384	.3440	57,500	167,000	.030	---------	4.0	9.50	6	---------	.3440	1.50	22.35	13.5
I-22b	.384	.3440	52,050	151,200	.030	---------	4.0	9.50	6	---------	.3440	1.50	22.35	13.5
I-23a	.795	.3475	53,700	154,600	.030	---------	8.0	9.50	6	---------	.3475	1.50	44.7	13.5
[1] I-23b	.758	.3310	18,600	56,200	.030	---------	8.0	9.50	6	---------	.3310	1.50	44.7	13.5
I-24a	1.168	.3400	42,600	79,800	.030	---------	12.0	9.50	6	---------	.3400	1.50	67.1	13.5
I-24b	1.145	.3340	42,750	78,100	.030	---------	12.0	9.50	6	---------	.3340	1.50	67.1	13.5
I-25a	.341	.2980	45,500	152,100	.030	---------	4.0	8.50	4	---------	.2980	2.00	22.19	22
I-25b	.362	.3162	50,600	160,000	.030	---------	4.0	8.50	4	---------	.3162	2.00	22.19	22
I-26a	.670	.2930	41,450	141,500	.030	---------	8.0	8.50	4	---------	.2930	2.00	44.38	22
I-26b	.670	.2930	41,900	143,000	.030	---------	8.0	8.50	4	---------	.2930	2.00	44.38	22
I-27a	.950	.2770	32,200	116,300	.030	---------	12.0	8.50	4	---------	.2770	2.00	66.55	22
I-27b	.950	.2770	24,850	89,750	.030	---------	12.0	8.50	4	---------	.2770	2.00	66.55	22

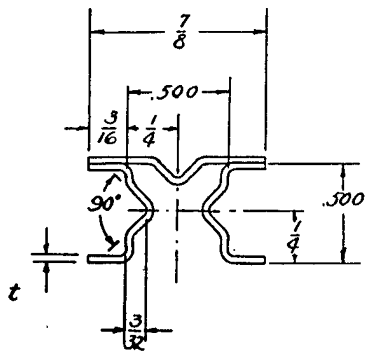
[1] Tested on knife-edges.

TABLE XVI—*Corrugated stainless steel specimens*—Continued

Specification no.	Weight (pounds)	Area (square inch)	Failing load (pounds)	Failing stress (lb./sq. in.)	Thickness: Stiffener (inch)	Thickness: Sheet (inch)	Length (inches)	Width (inches)	Number of corrugations	Area of sheet (square inch)	Area corrugated (square inch)	Pitch (inches)	L/ρ	R/t
I-28a	.329	.2881	40,570	140,700	.019	0.005	3.99	8.47	8	0.0423	.2458	1.00	21.4	--------
I-28b	.340	.2987	43,680	146,400	.019	.005	3.98	8.54	8	.0426	.2561	1.00	21.4	--------
I-29a	.667	.2915	36,200	124,200	.020	.005	8.0	8.50	8	.0425	.2490	1.00	43.0	--------
I-29b	.663	.2900	40,500	139,700	.019	.005	7.99	8.52	8	.0426	.2474	1.00	42.9	--------
I-30a	1.027	.3000	43,075	110,250	.019	.005	11.97	8.48	8	.0424	.2576	1.00	69.8	--------
I-30b	1.009	.2940	32,050	109,000	.020	.005	11.99	8.52	8	.0426	.2514	1.00	69.9	--------
I-31a	.372	.3275	43,210	132,000	.019	.010	3.97	8.52	8	.0852	.2423	1.00	21.0	--------
I-31b	.379	.3328	46,930	140,900	020	.010	3.98	8.50	8	.0850	.2478	1.00	21.0	--------
I-32a	.741	.3243	42,330	130,400	.019	.010	7.98	8.58	8	.0858	.2385	1.00	42.1	--------
I-32b	.752	.3290	43,190	131,200	.019	.010	7.99	8.58	8	.0858	.2432	1.00	42.2	--------
I-33a	1.152	.3372	33,990	100,900	.019	.010	11.94	8.55	8	.0855	.2517	1.00	63.1	--------
I-33b	1.126	.3288	34,410	104,600	.019	.010	11.97	8.48	8	.0848	.2440	1.00	63.3	--------
I-34a	.415	.3643	46,990	129,000	.019	.014	3.98	8.52	8	.1193	.2450	1.00	21.2	--------
I-34b	.420	.3690	44,560	120,900	.019	.015	3.98	8.49	8	.1272	.2418	1.00	21.2	--------
I-35a	.830	.3626	42,610	117,500	.019	.014	8.0	8.48	8	.1187	.2439	1.00	42.5	--------
I-35b	.858	.3670	43,180	117,600	.019	.015	7.98	8.50	8	.1275	.2395	1.09	42.4	--------
I-36a	1.285	.3746	34,590	92,300	.019	.015	11.99	8.50	8	.1275	.2471	1.00	63.6	--------
I-36b	1.278	.3730	36,560	98,000	.019	.014	11.98	8.52	8	.1192	.2538	1.00	63.6	--------
I-37a	.471	.4115	43,400	105,200	.020	.020	4.40	8.50	8	.1700	.2415	1.00	21.4	--------
I-37b	.458	.4000	43,900	109,800	.020	.020	4.0	8.50	8	.1700	.2300	1.00	21.4	--------
I-38a	.926	.4050	46,980	116,000	.019	.019	7.99	8.51	8	.1618	.2432	1.00	42.7	--------
I-38b	.916	.4000	40,200	100,500	.020	.020	8.0	8.50	8	.1700	.2300	1.00	42.7	--------
I-39a	1.412	.4121	32,920	79,800	.019	.019	11.97	8.50	8	.1615	.2506	1.00	64.0	--------
I-39b	1.406	.4104	38,480	93,700	.019	.010	11.98	8.49	8	.1613	.2491	1.00	64.0	--------
I-40a	.571	.5013	59,230	118,300	.019	.029	3.98	8.55	8	.2480	.2533	1.00	21.8	--------
I-40b	.564	.4930	59,450	120,500	.019	.029	4.0	8.49	8	.2460	.2470	1.00	21.9	--------
I-41a	1.130	.4947	57,790	117,000	.019	.029	7.98	8.53	8	.2474	.2473	1.00	43.7	--------
I-41b	1.100	.4815	56,250	116,900	.019	.029	7.98	8.49	8	.2460	.2355	1.00	43.7	--------
I-42a	1.675	.4888	43,200	88,400	.019	.029	11.98	8.50	8	.2465	.2423	1.00	65.6	--------
I-42b	1.652	.4823	44,050	91,300	.019	.028	11.97	8.49	8	.2460	.2363	1.00	65.6	--------
I-43a	.267	.233	26,000	111,600	.020	.005	4.0	8.50	4	.0425	.1905	2.00	21.1	--------
I-43b	.267	.233	25,200	108,200	.020	.005	4.0	8.50	4	.0425	.1905	2.00	21.1	--------
I-44a	.544	.238	26,250	110,400	.020	.005	7.98	8.58	4	.0429	.1951	2.00	42.1	--------
I-44b	.533	.2335	24,800	106,300	.020	.005	7.98	8.58	4	.0429	.1906	2.00	42.1	--------
I-45a	.818	.2385	23,600	98,900	.020	.005	11.98	8.58	4	.0429	.1956	2.00	63.2	--------
I-45b	.812	.2365	21,900	92,600	.020	.005	12.0	8.57	4	.0429	.1936	2.00	63.2	--------
I-46a	.300	.264	21,500	81,500	.020	.010	3.97	8.50	4	.0850	.1790	2.00	20.8	--------
I-46b	.302	.265	24,500	92,400	.020	.010	3.98	8.52	4	.0852	.1798	2.00	20.9	--------
I-47a	.625	.274	25,400	92,700	.020	.010	7.98	8.55	4	.0855	.1885	2,00	41.8	--------
I-47b	.625	.274	27,200	99,300	.020	.010	7.97	8.55	4	.0855	.1885	2.00	41.8	--------
I-48a	.945	.2755	27,500	99,900	.020	.010	12.0	8.61	4	.0861	.1894	2.00	62.9	--------
I-48b	.945	.2750	26,500	96,200	.020	.010	12.0	8.54	4	.0854	.1896	2.00	62.9	--------
I-49a	.367	.322	29,220	90,800	.019	.015	3.98	8.52	4	.1278	.1942	2.00	21.2	--------
I-49b	.366	.322	31,020	96,300	.020	.015	3.97	8.52	4	.1278	.1942	2.00	21.2	--------
I-50a	.721	.3154	27,760	87,900	.020	.015	7.99	8.49	4	.1273	.1881	2.00	42.5	--------
I-50a	.715	.3170	27,360	86,300	.019	.015	7.97	8.50	4	.1274	.1896	2.00	42.4	--------
I-51a	1.073	.3130	20,770	66,400	.020	.015	11.99	8.52	4	.1278	.1852	2.00	63.8	--------
I-51b	1.075	.3138	21,150	67.400	.020	.015	11.98	8.64	4	.1295	.1843	2.00	63.8	--------
I-52a	.392	.3478	29,440	84,700	.020	.019	3.94	8.53	4	.1279	.2199	2.00	21.2	--------
I-52b	.397	.3455	30,190	87,400	.020	.019	3.96	8.53	4	.1279	.2176	2.00	21.3	--------
I-53a	.792	.346	23,650	68.400	.020	.019	8.0	8.52	4	.1278	.2182	2.00	43.1	--------
I-53b	.799	.350	27,000	77,200	.019	.019	7.98	8.51	4	.1277	.2223	2.00	43.0	--------
I-54a	1.182	.3455	23,030	66,700	.019	.019	11.96	8.46	4	.1610	.1845	2.00	64.4	--------
I-54b	1.202	.3511	22,110	63,000	.019	.019	11.96	8.51	4	.1617	.1894	2.00	64.4	--------
I-55a	.491	.4300	33,780	78,600	.019	.030	3.99	8.56	4	.2570	.1730	2.00	22.4	--------
I-55b	.495	.4345	32,040	73,800	.020	.029	3.98	8.51	4	.2465	.1880	2.00	22.4	--------
I-56a	.990	.4330	31,020	71,700	.019	.029	7.99	8.57	4	.2485	.1845	2.00	44.9	--------
I-56b	.993	.4376	37,460	85,700	.019	.029	8.0	8.50	4	.2460	.1916	2.00	44.9	--------
I-57a	1.486	.4335	22,980	53,000	.019	.029	11.99	8.52	4	.2470	.1865	2.00	67.4	--------
I-57b	1.486	.4330	25,680	59,300	.019	.029	12.0	8.52	4	.2470	.1860	2.00	67.5	--------



PERSPECTIVE OF TYPICAL SECTION



STIFFENER SECTION
A, B & C SERIES

FIG.-1

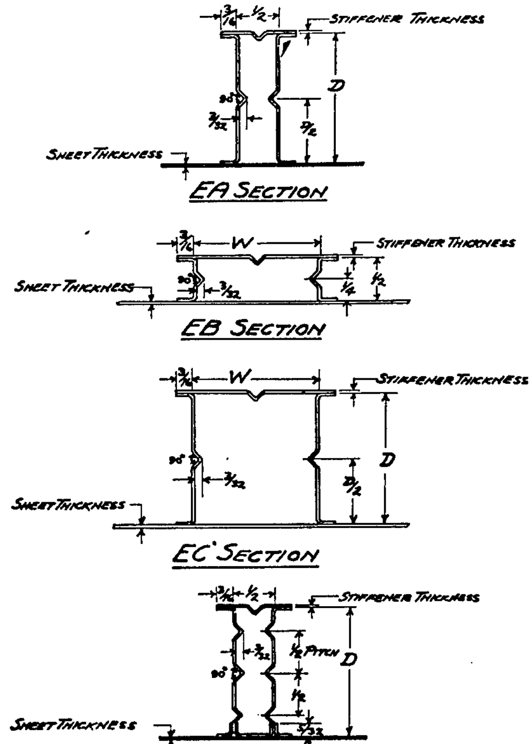
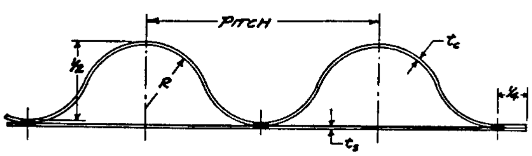


FIG. 2

CORRUGATED STAINLESS STEEL
I- SERIES



PITCH IN.	R IN.	RADIUS OF GYRATION ρ
1.00	.250	.1754
1.50	.405	.1789
2.00	.660	.1803

FIG. 3

SIMPLE BOX BEAM

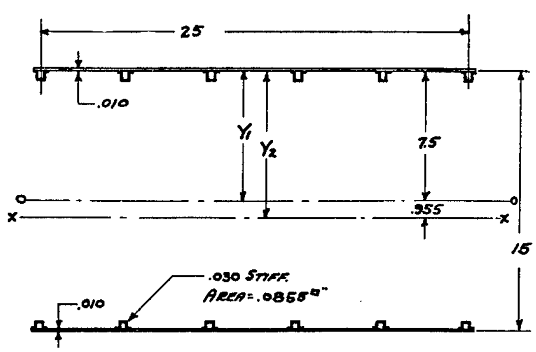
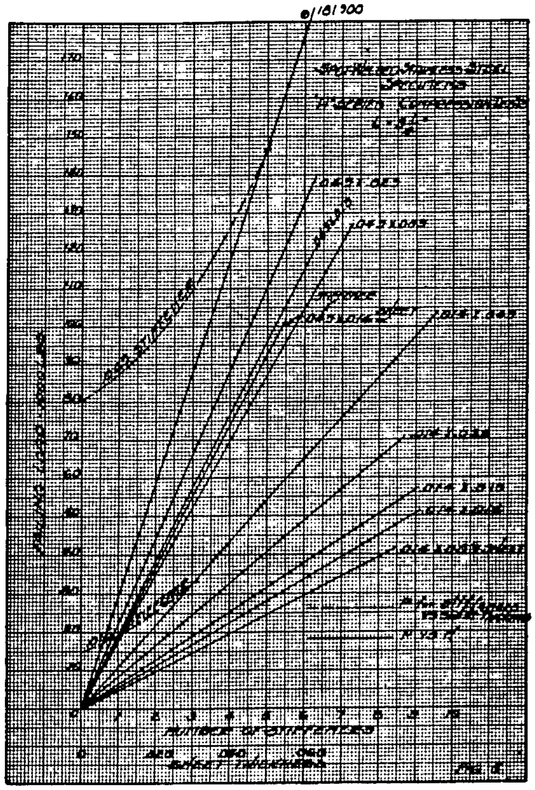
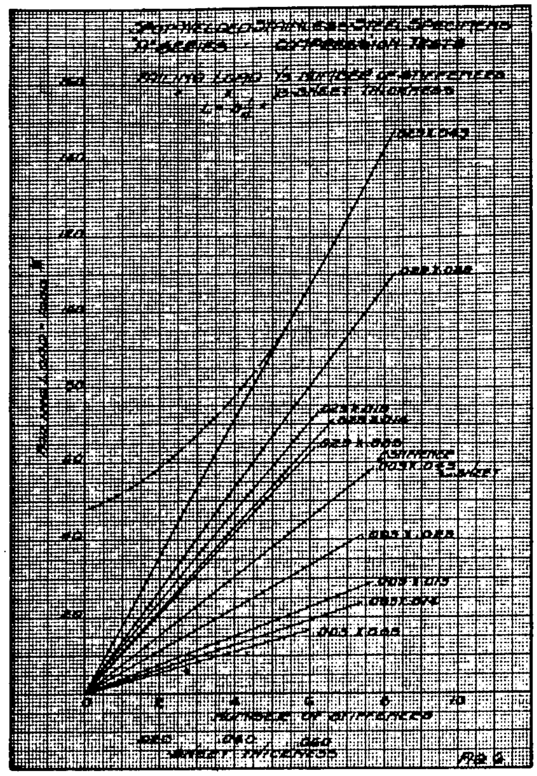
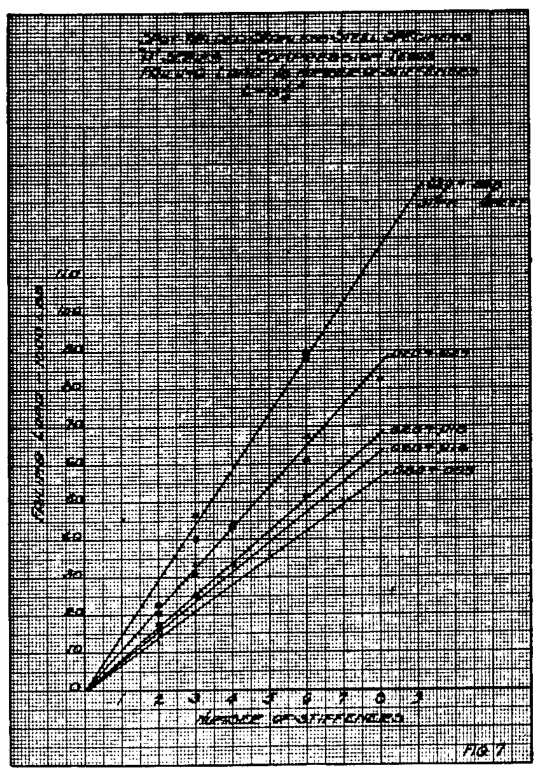


FIG. 4







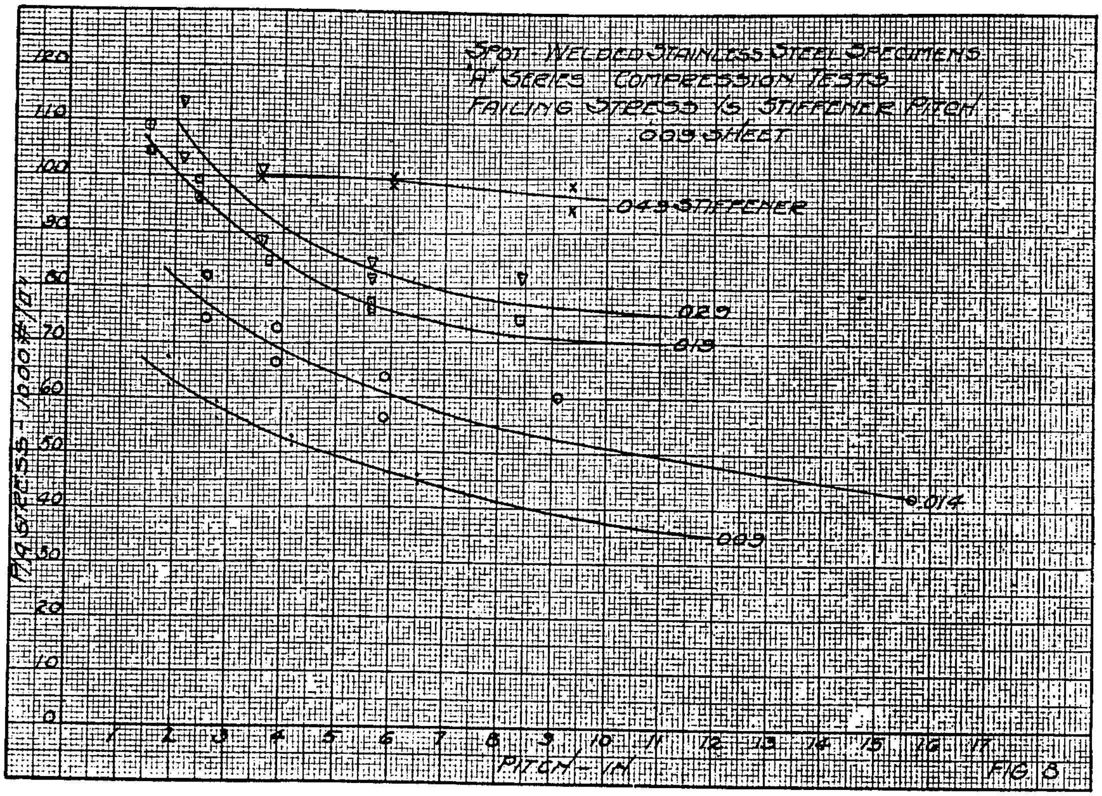

SPOT WELDED STAINLESS STEEL SPECIMENS
"A" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER PITCH
.009 SHEET
.049 STIFFENER
.029
.019
.014
.009
P/A STRESS - 1000 #/□"
PITCH - IN

FIG 8

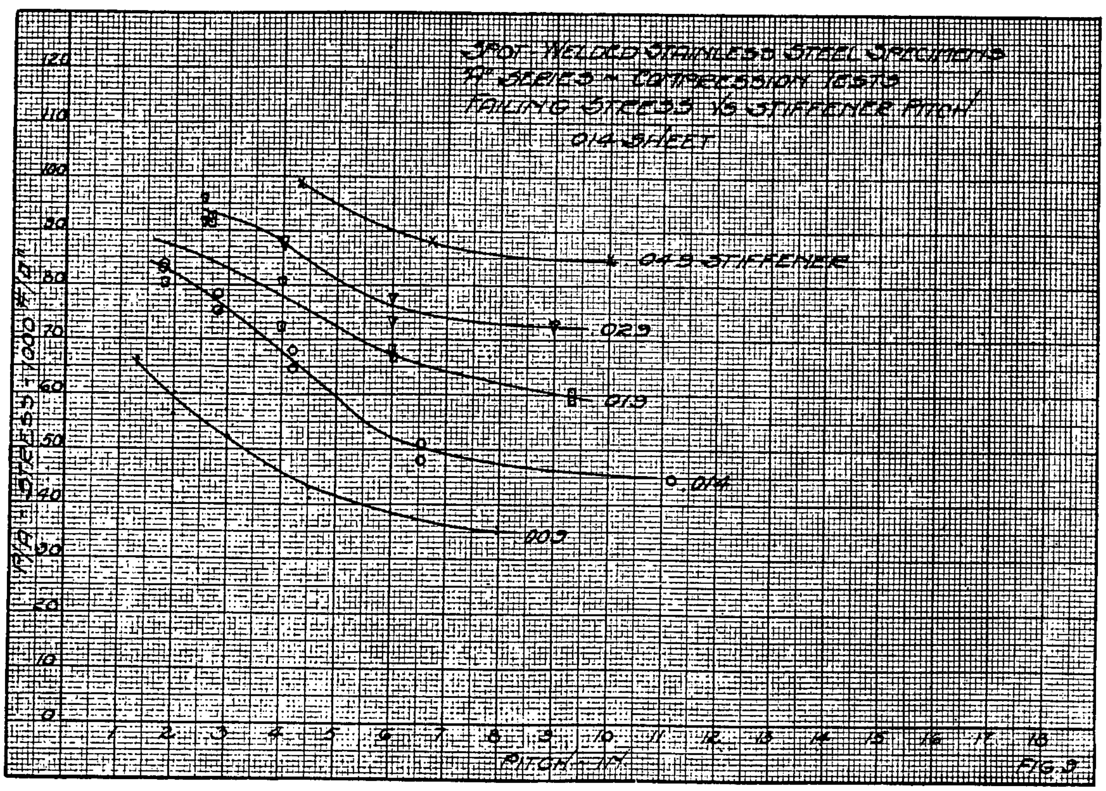
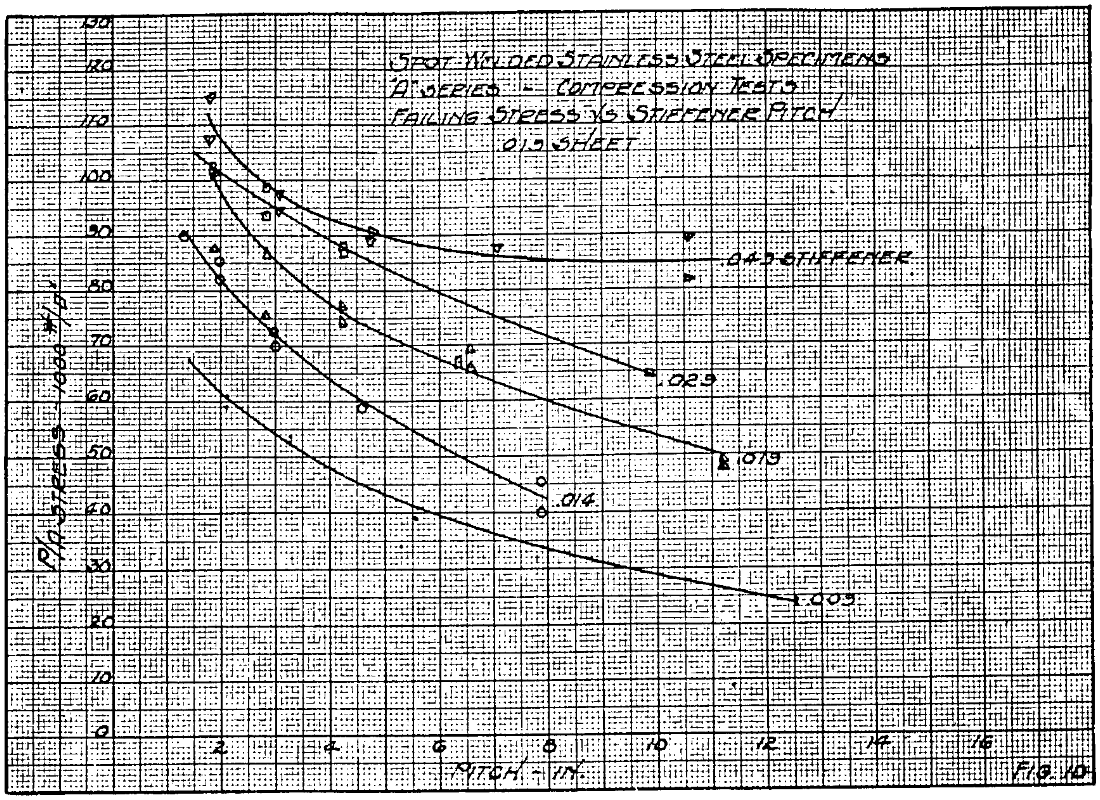
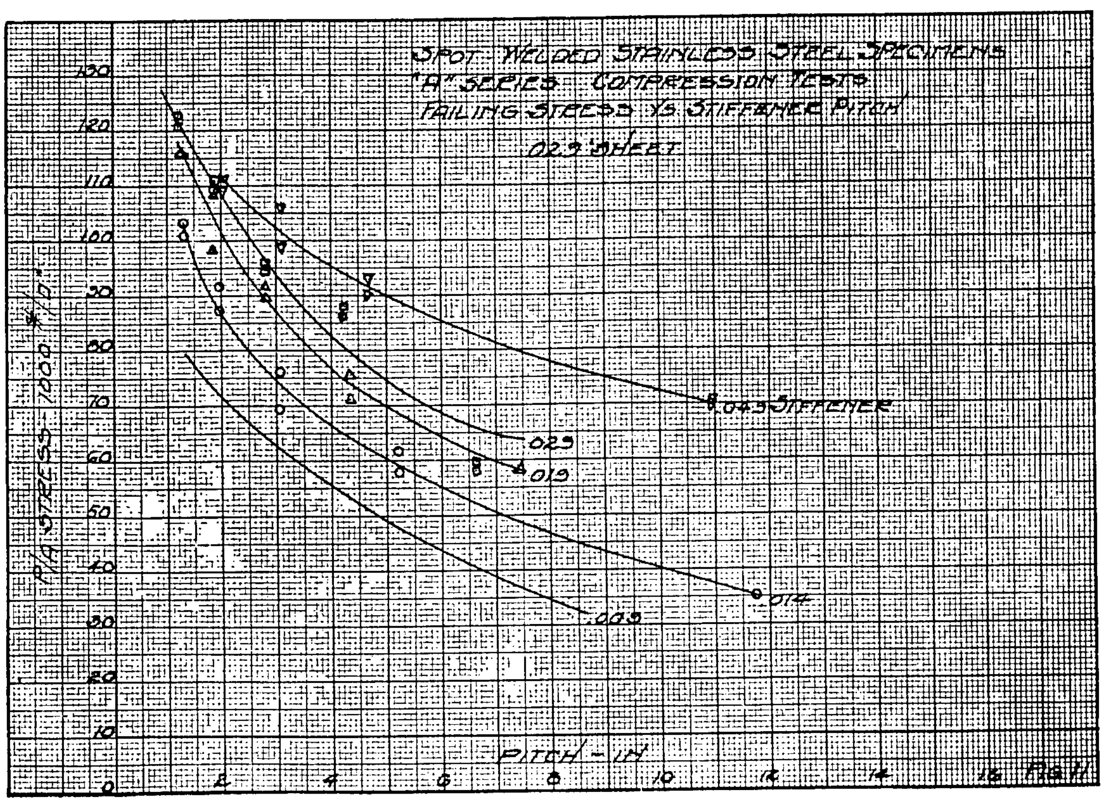

SPOT WELDED STAINLESS STEEL SPECIMENS
"A" SERIES - COMPRESSION TESTS
FAILING STRESS VS STIFFENER PITCH
.014 SHEET
.049 STIFFENER
.029
.019
.014
.009
P/A - STRESS - 1000 #/□"
PITCH - IN

FIG 9


SPOT WELDED STAINLESS STEEL SPECIMENS
"A" SERIES - COMPRESSION TESTS
FAILING STRESS VS STIFFENER PITCH
.019 SHEET
.043 STIFFENER
.029
.019
.014
.009
P/A STRESS 1000 #/□"
PITCH - IN.
FIG. 10


SPOT WELDED STAINLESS STEEL SPECIMENS
"A" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER PITCH
.029 SHEET
.043 STIFFENER
.029
.019
.014
.009
P/A STRESS 1000 #/□"
PITCH - IN
FIG. 11

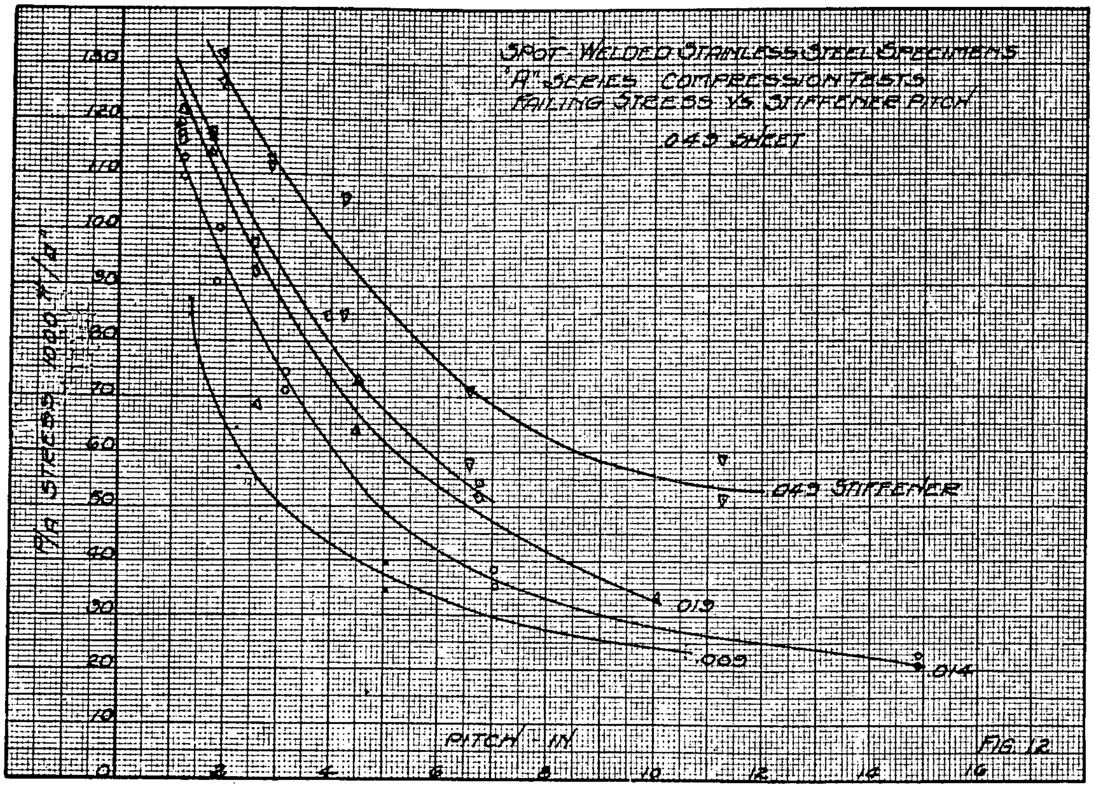

SPOT-WELDED STAINLESS STEEL SPECIMENS
"A" SERIES COMPRESSION TESTS
FAILING STRESS VS. STIFFENER PITCH
.043 SHEET
P/A STRESS 1000 #/□"
PITCH IN.
.049 STIFFENER
.019
.009
.014

FIG. 12

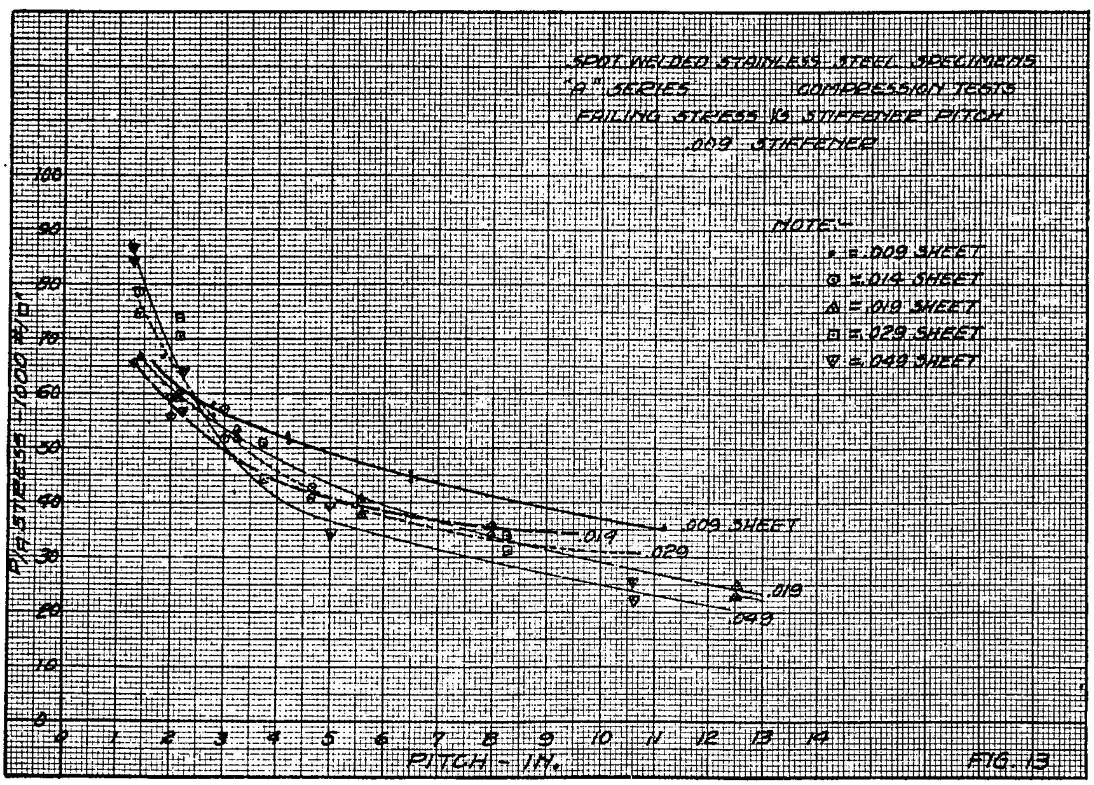
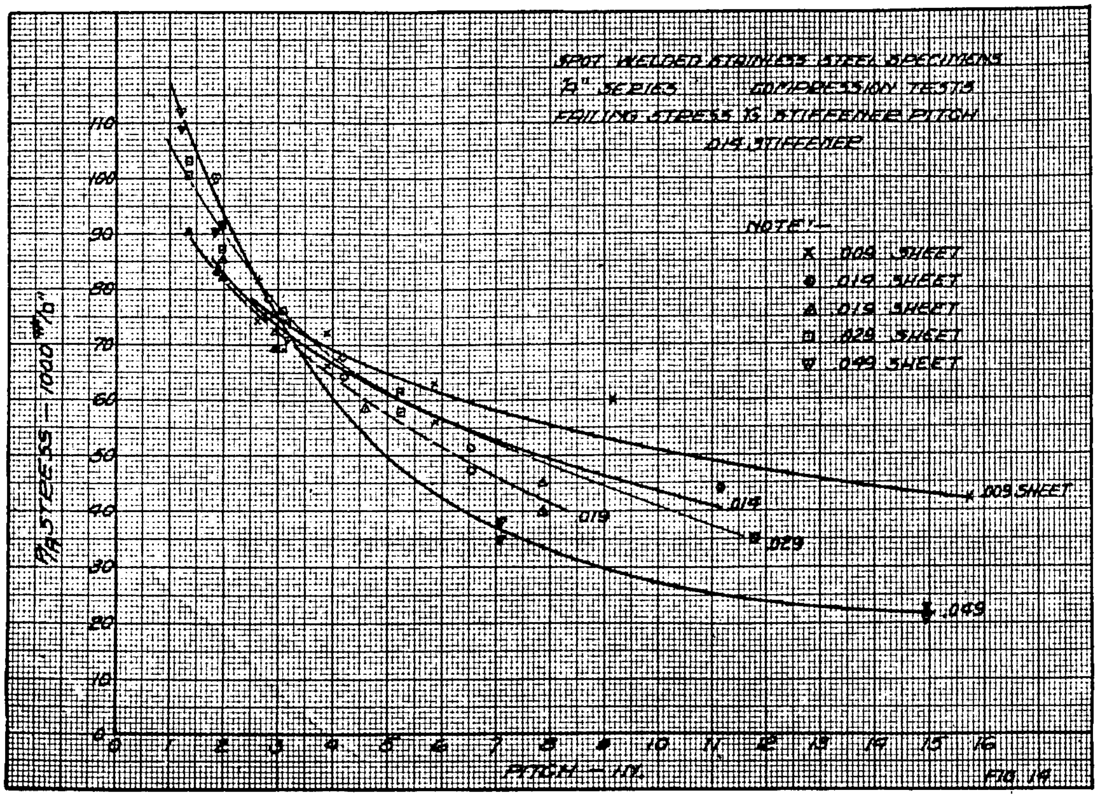
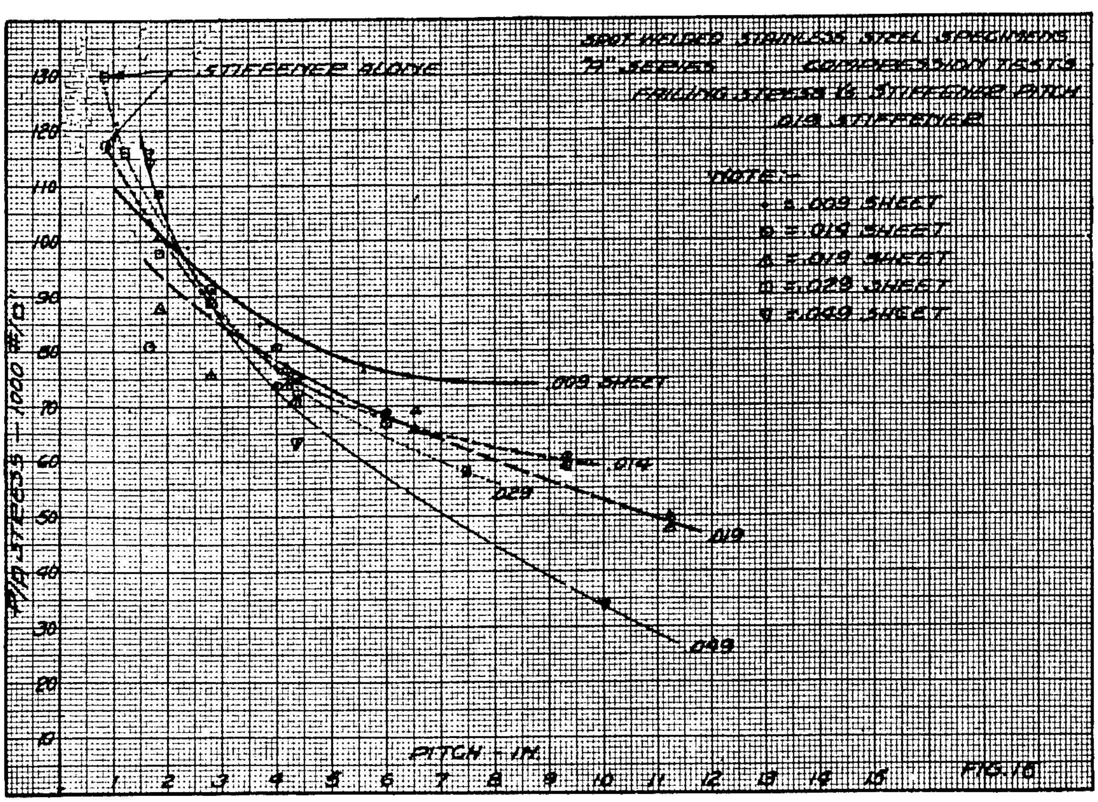

SPOT WELDED STAINLESS STEEL SPECIMENS
"A" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER PITCH
.009 STIFFENER
NOTE:-
• = .009 SHEET
⊙ = .014 SHEET
△ = .019 SHEET
□ = .029 SHEET
▽ = .049 SHEET
P/A STRESS - 1000 #/□"
PITCH - IN.
.009 SHEET
.014
.029
.019
.049

FIG. 13


SPOT WELDED STAINLESS STEEL SPECIMENS
COMPRESSION TESTS
FAILING STRESS VS STIFFENER PITCH
.019 STIFFENER
NOTE:—
.009 SHEET
.014 SHEET
.019 SHEET
.029 SHEET
.049 SHEET
P/A STRESS — 1000 #/□"
PITCH — IN.
.009 SHEET
.014
.019
.029
.049
FIG. 14


SPOT WELDED STAINLESS STEEL SPECIMENS
COMPRESSION TESTS
FAILING STRESS VS STIFFENER PITCH
.019 STIFFENER
STIFFENER ALONE
NOTE:—
= .009 SHEET
= .014 SHEET
= .019 SHEET
= .029 SHEET
= .049 SHEET
P/A STRESS — 1000 #/□"
PITCH — IN.
.009 SHEET
.014
.029
.019
.049
FIG. 15

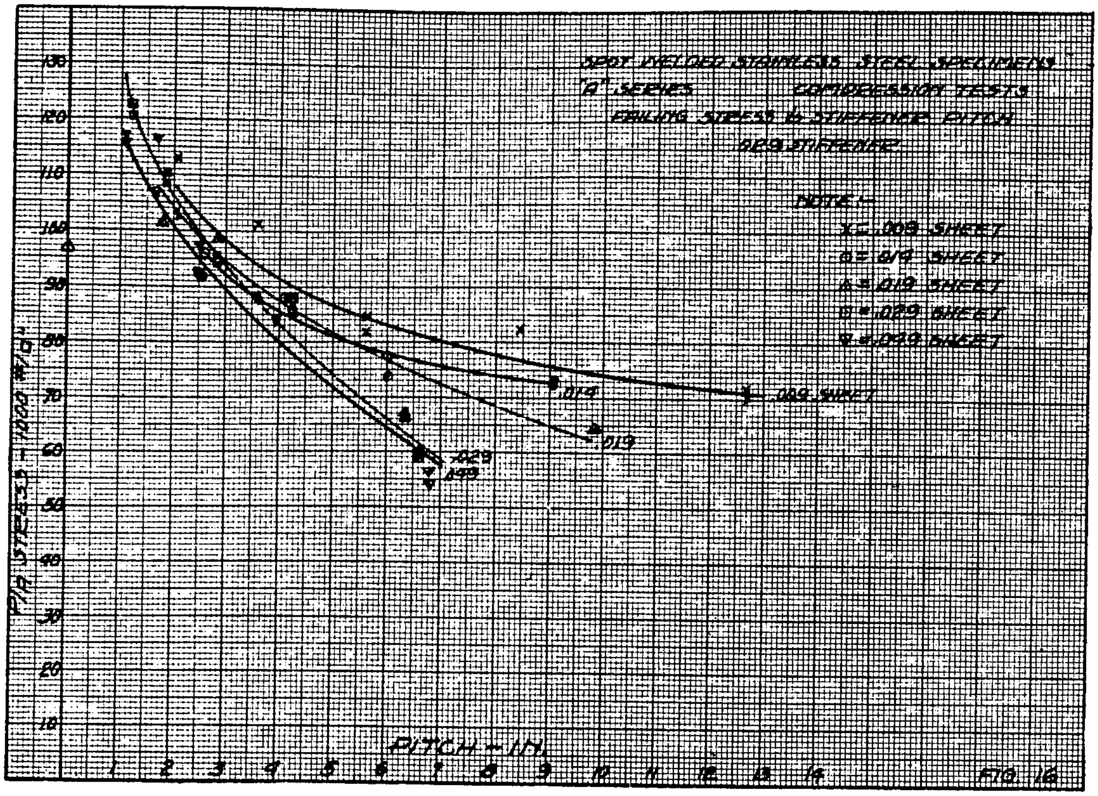

SPOT WELDED STAINLESS STEEL SPECIMENS
"A" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER PITCH
.029 STIFFENER
NOTE:–
X = .009 SHEET
⊙ = .014 SHEET
△ = .019 SHEET
⊡ = .029 SHEET
▽ = .049 SHEET
P/A STRESS – 1000 #/□"
PITCH – IN.
.009 SHEET
.014
.019
.029
.049

FIG. 16

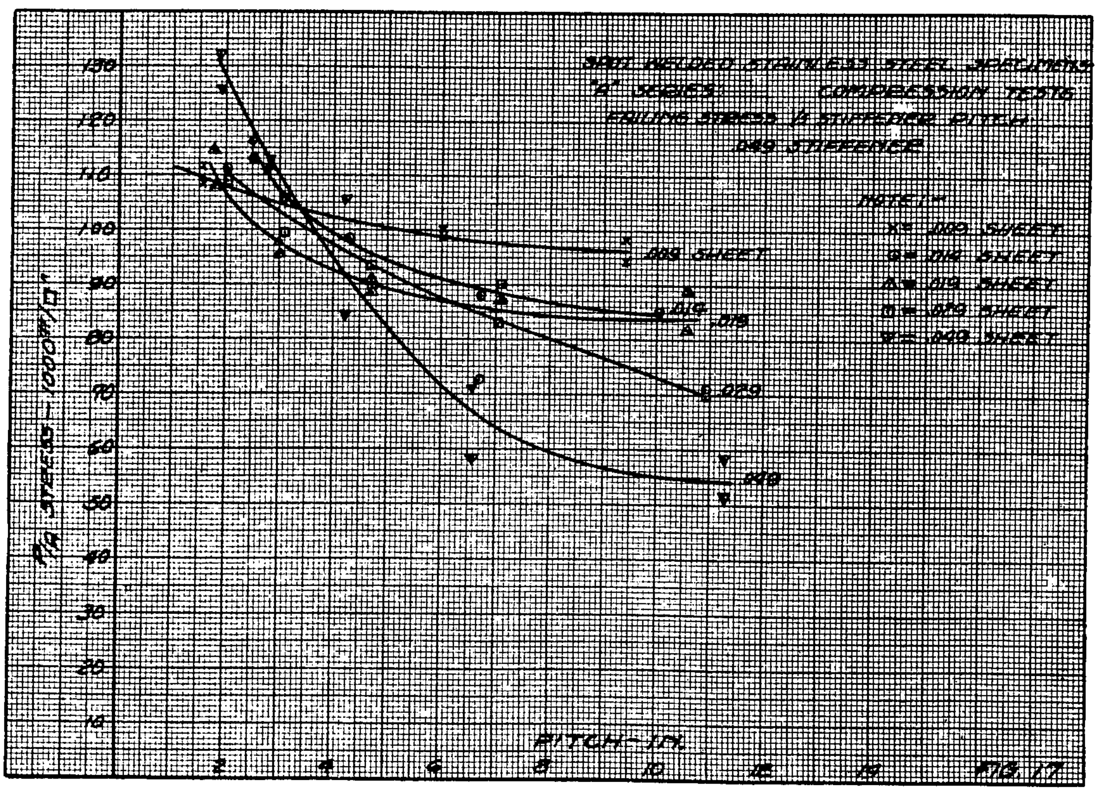

SPOT WELDED STAINLESS STEEL SPECIMENS
"A" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER PITCH
.049 STIFFENER
NOTE:–
X = .009 SHEET
⊙ = .014 SHEET
△ = .019 SHEET
⊡ = .029 SHEET
▽ = .049 SHEET
P/A STRESS – 1000#/□"
PITCH – IN.
.009 SHEET
.014
.019
.029
.049

FIG. 17

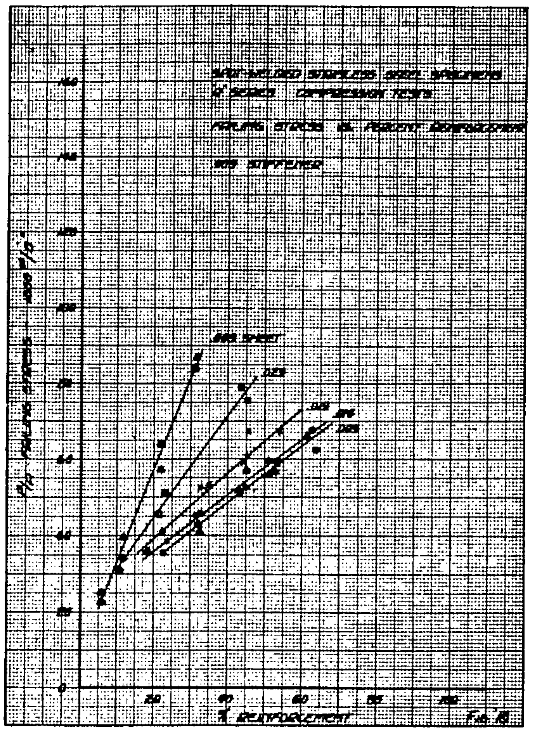


Fig. 18

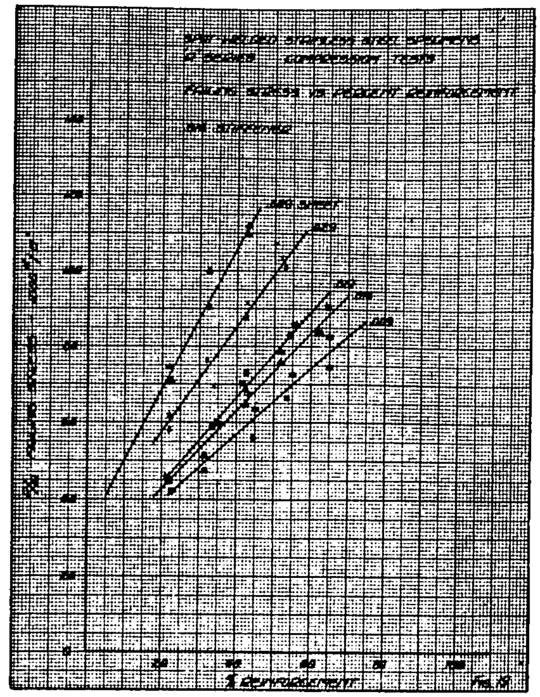


Fig. 19

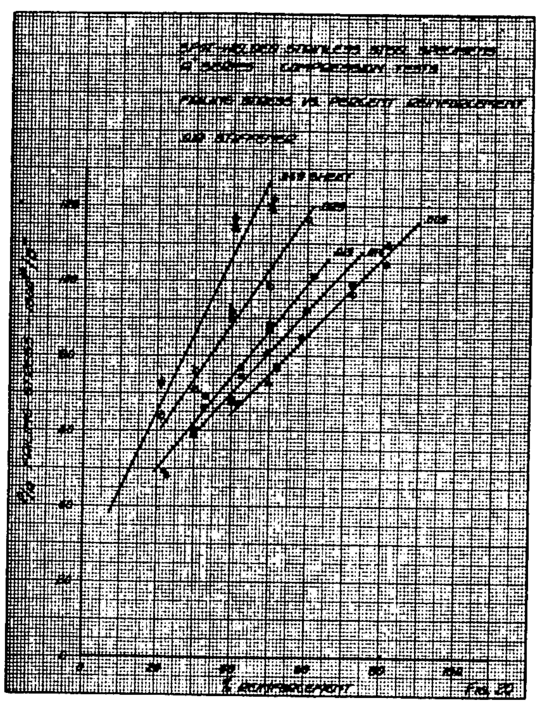


Fig. 20

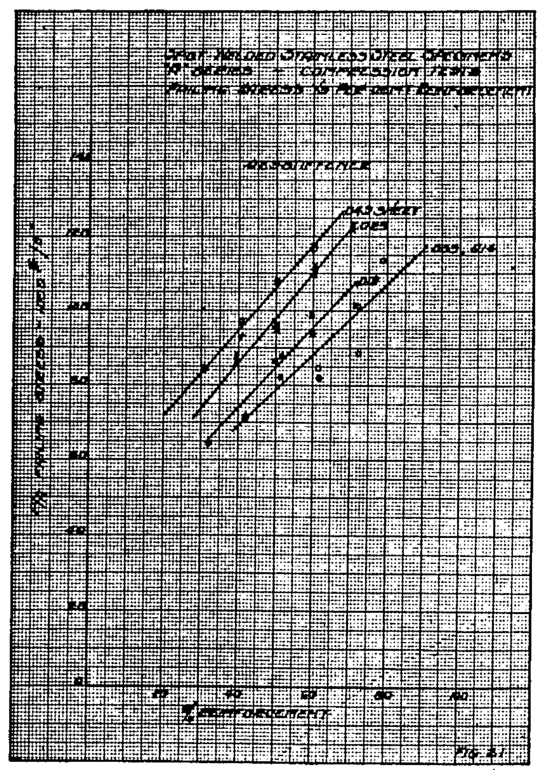


Fig. 21

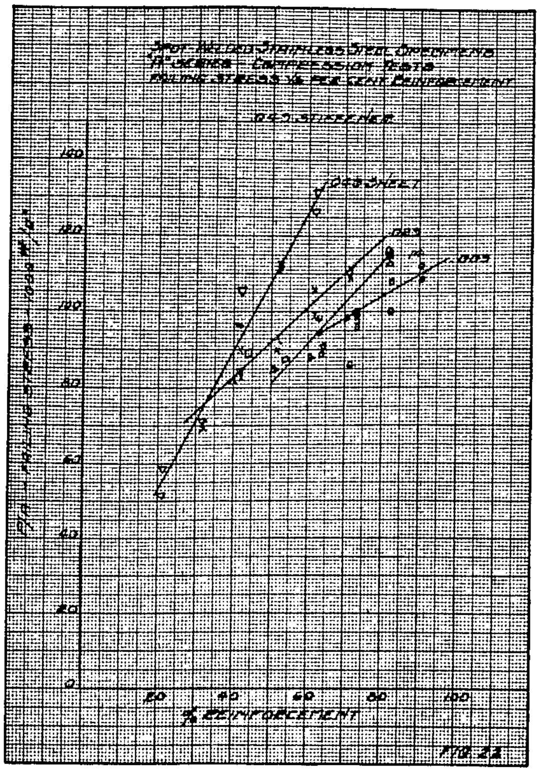


FIG. 22

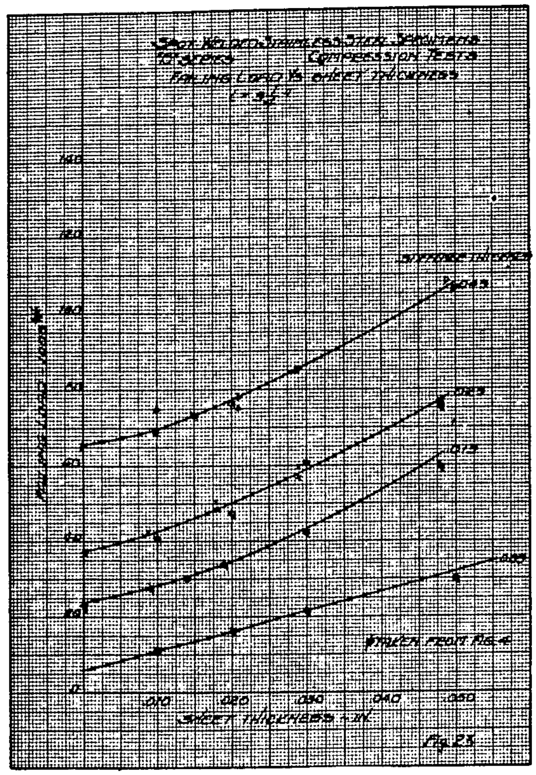


Fig. 23

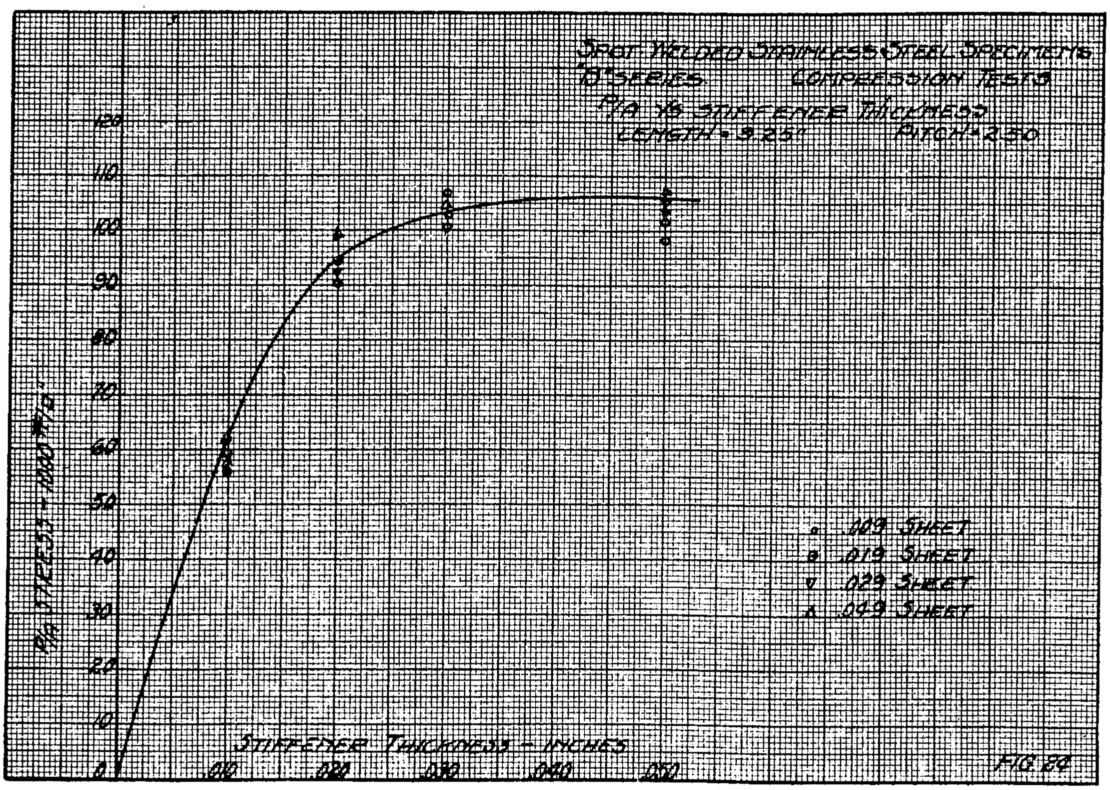
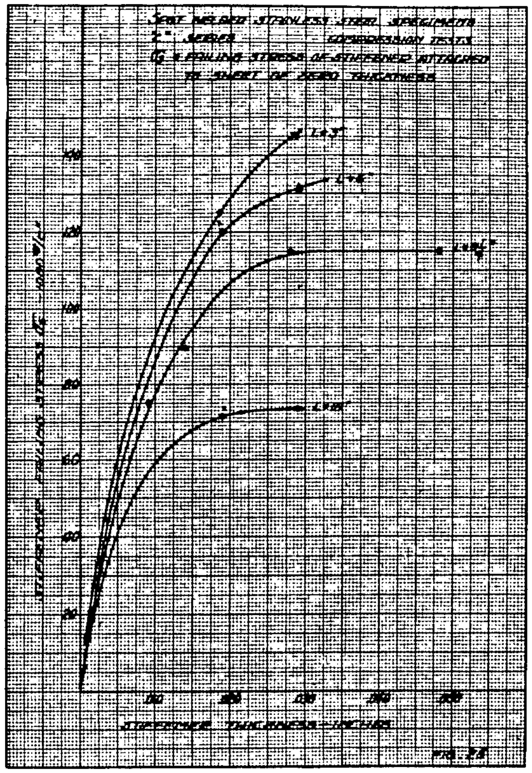
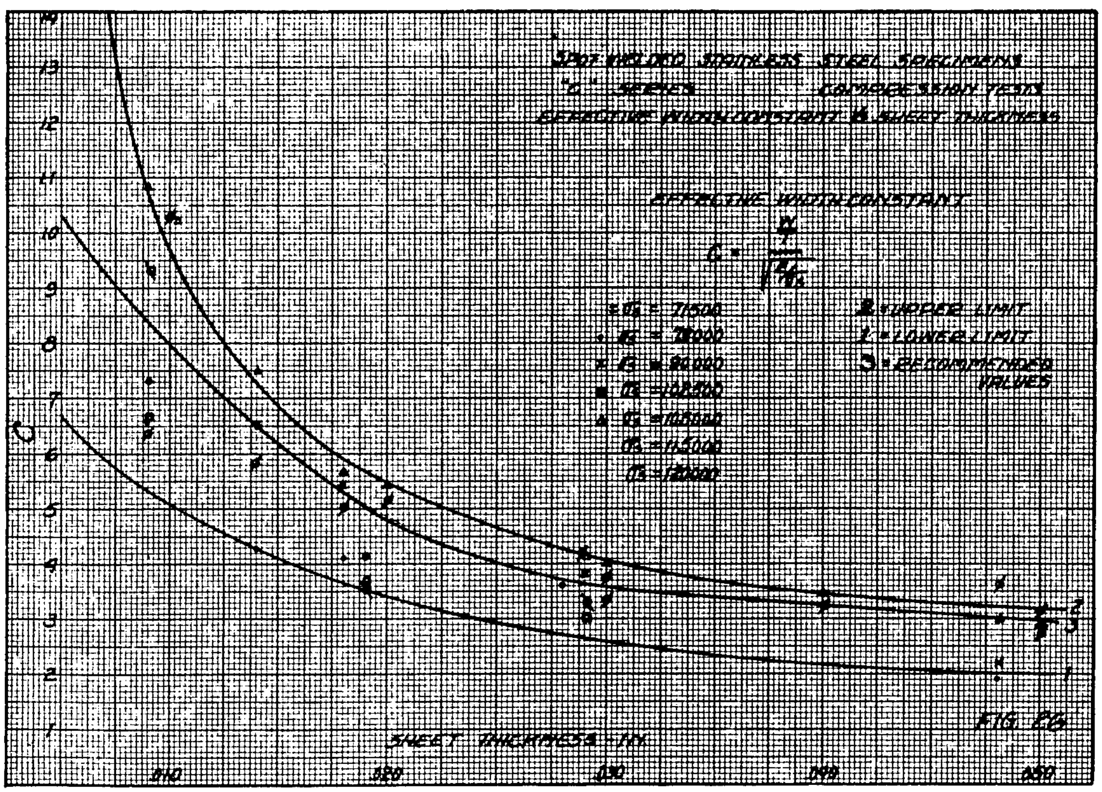


FIG. 24


SPOT WELDED STAINLESS STEEL SPECIMENS
COMPRESSION TESTS
TO SHEET OF ZERO THICKNESS
STIFFENER THICKNESS - INCHES


SPOT WELDED STAINLESS STEEL SPECIMENS
"C" SERIES
COMPRESSION TESTS
EFFECTIVE WIDTH CONSTANT
2 = UPPER LIMIT
1 = LOWER LIMIT
3 = RECOMMENDED VALUES
SHEET THICKNESS - IN.
.010
.020
.030
.040
.050
FIG. 26

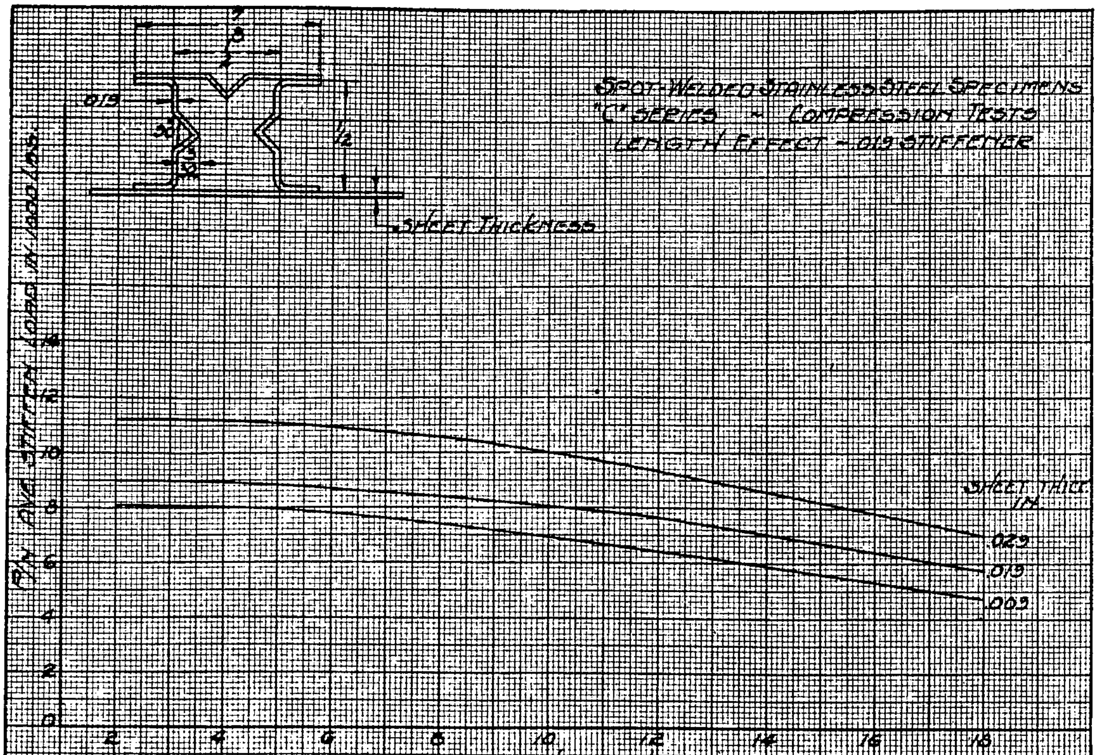

SPOT-WELDED STAINLESS STEEL SPECIMENS
"C" SERIES - COMPRESSION TESTS
LENGTH EFFECT - .019 STIFFENER
SHEET THICKNESS
SHEET THICK IN.
.025
.019
.009
P/N AVG STIFFEN LOAD IN 1000 LBS.
LENGTH - INCHES

FIG. 27

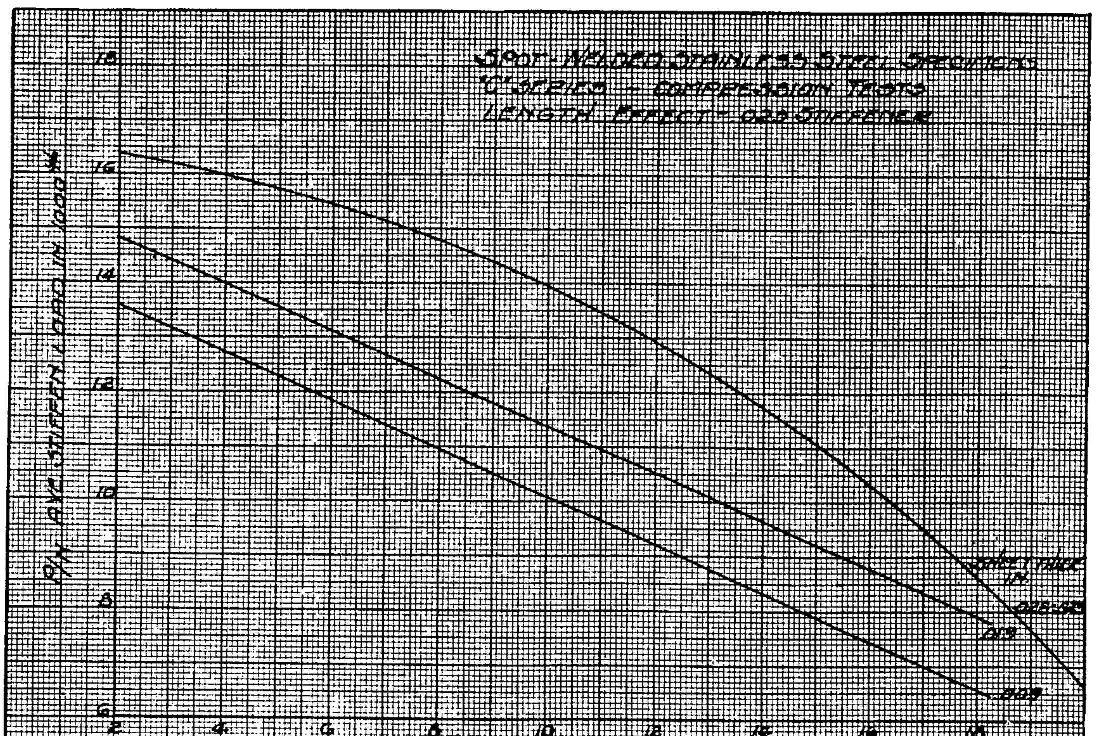
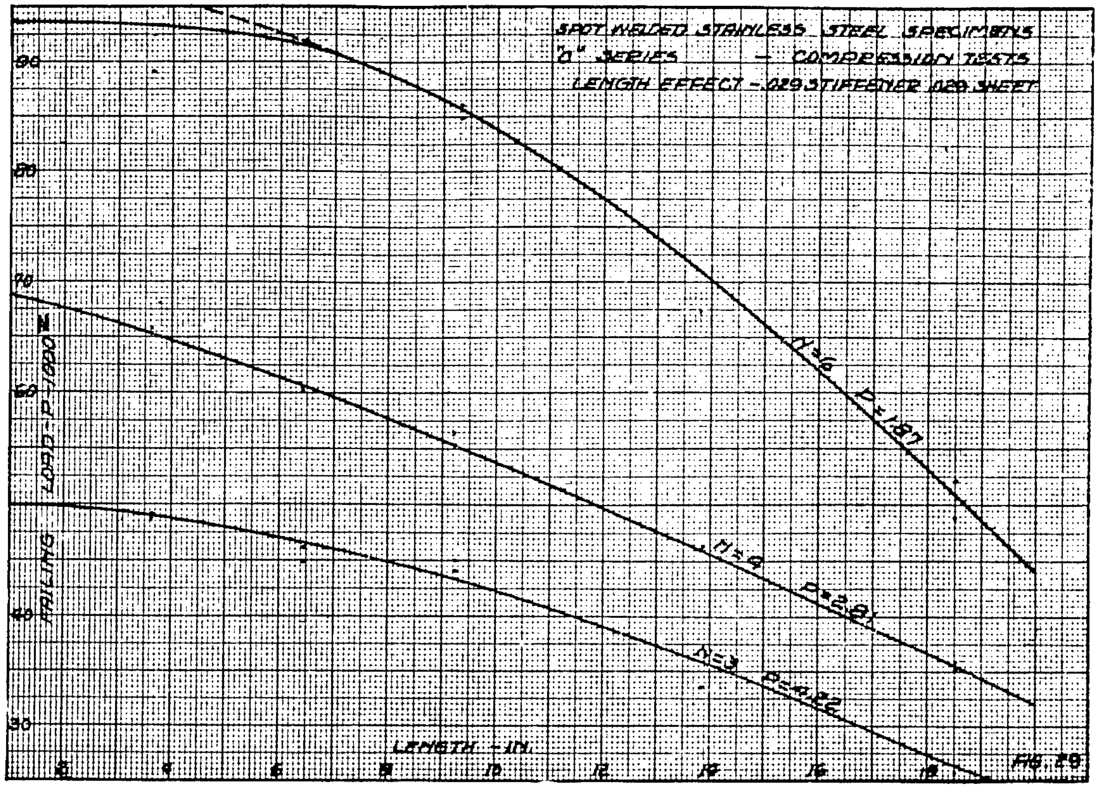
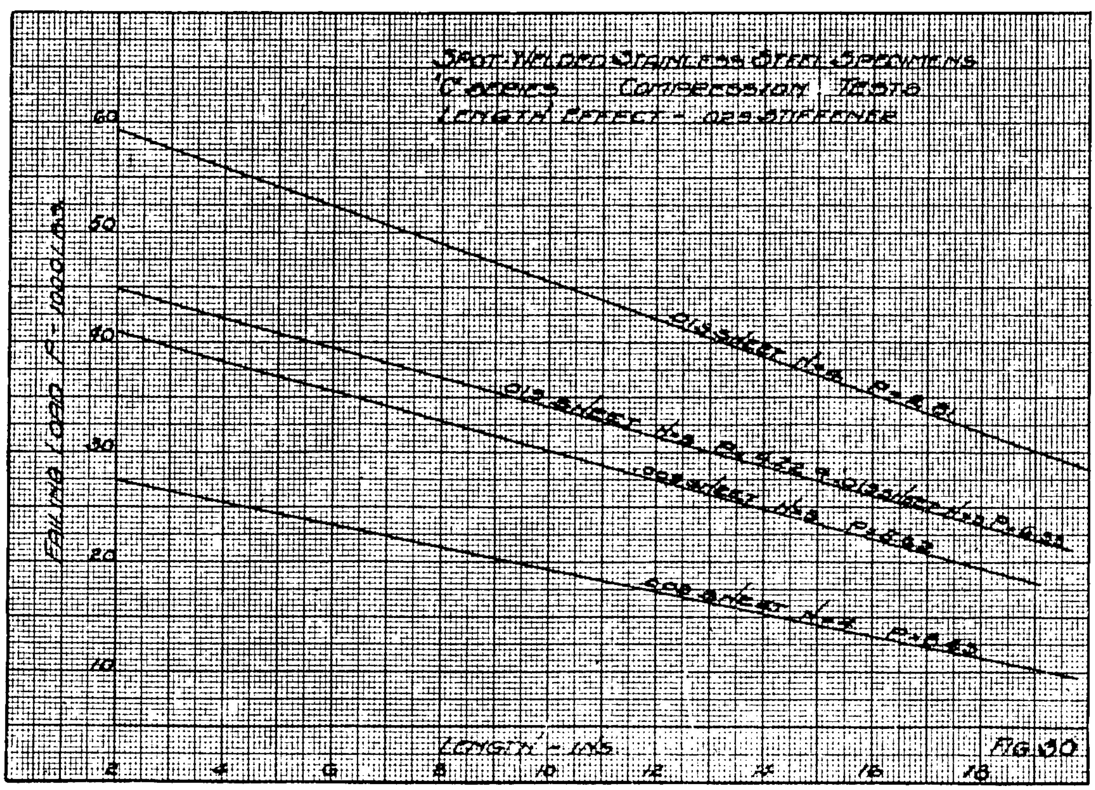
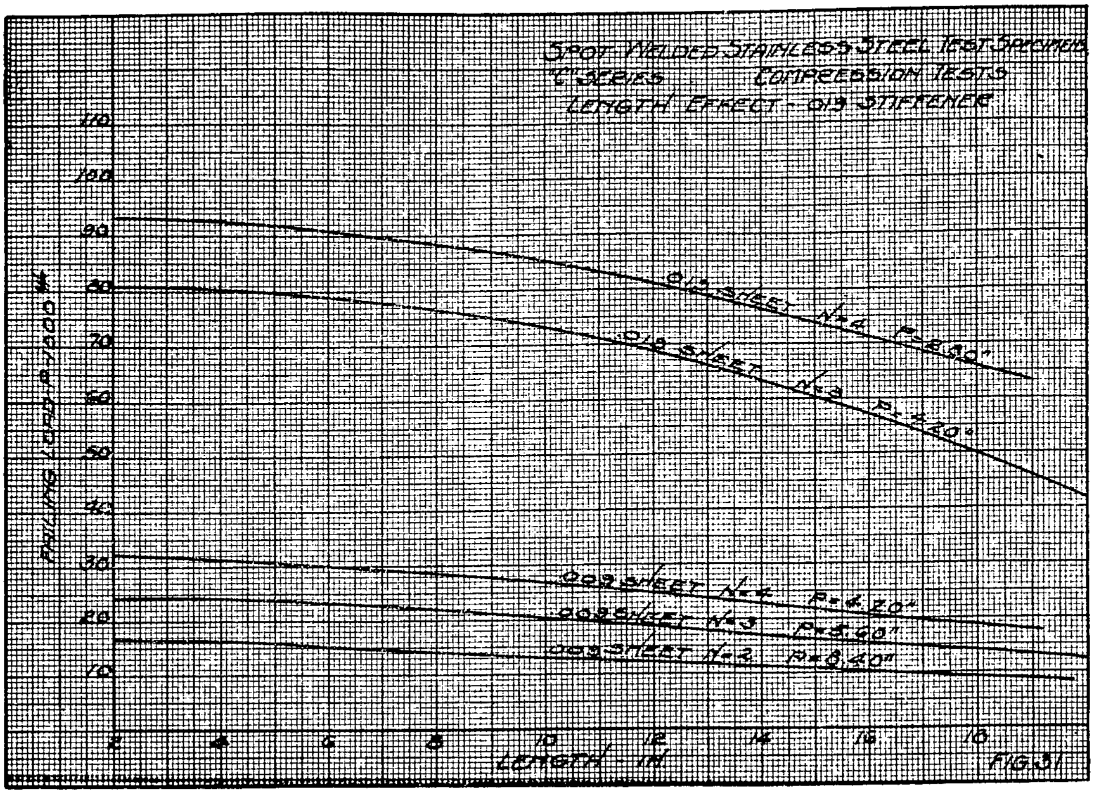
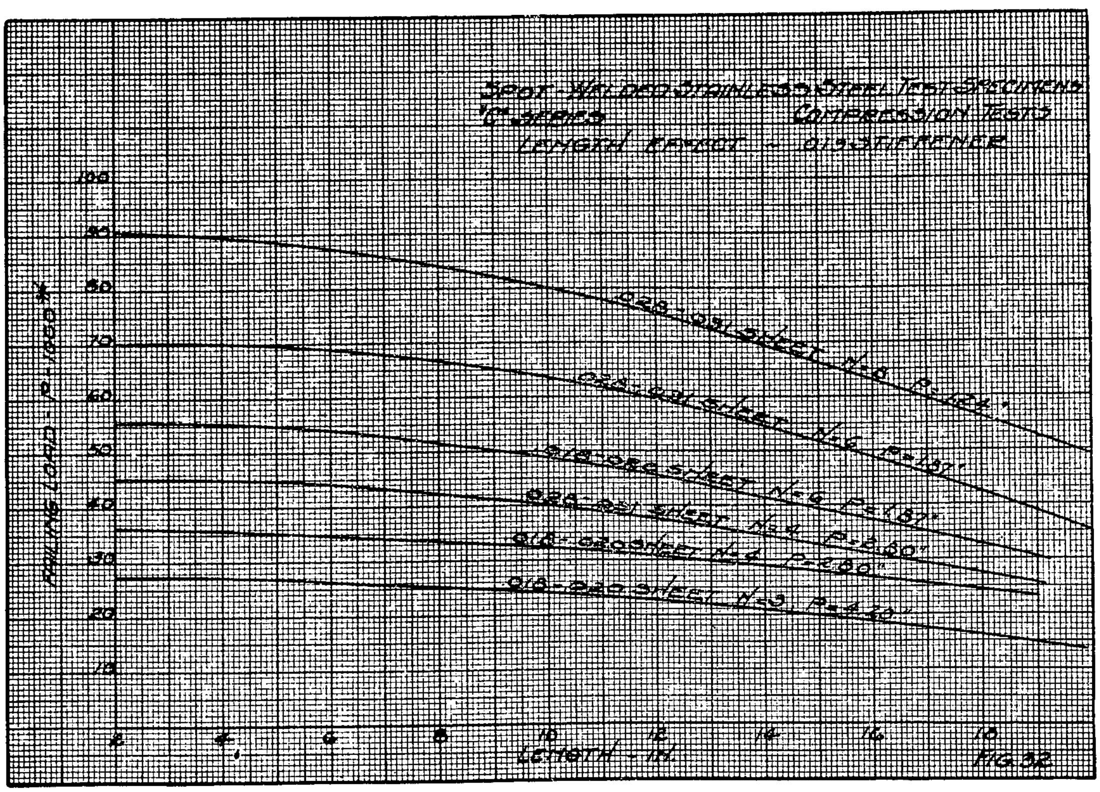

SPOT-WELDED STAINLESS STEEL SPECIMENS
"C" SERIES - COMPRESSION TESTS
LENGTH EFFECT - .025 STIFFENER
SHEET THICK IN.
.025-.025
.019
.009
P/N AVG STIFFEN LOAD IN 1000 #
LENGTH - IN

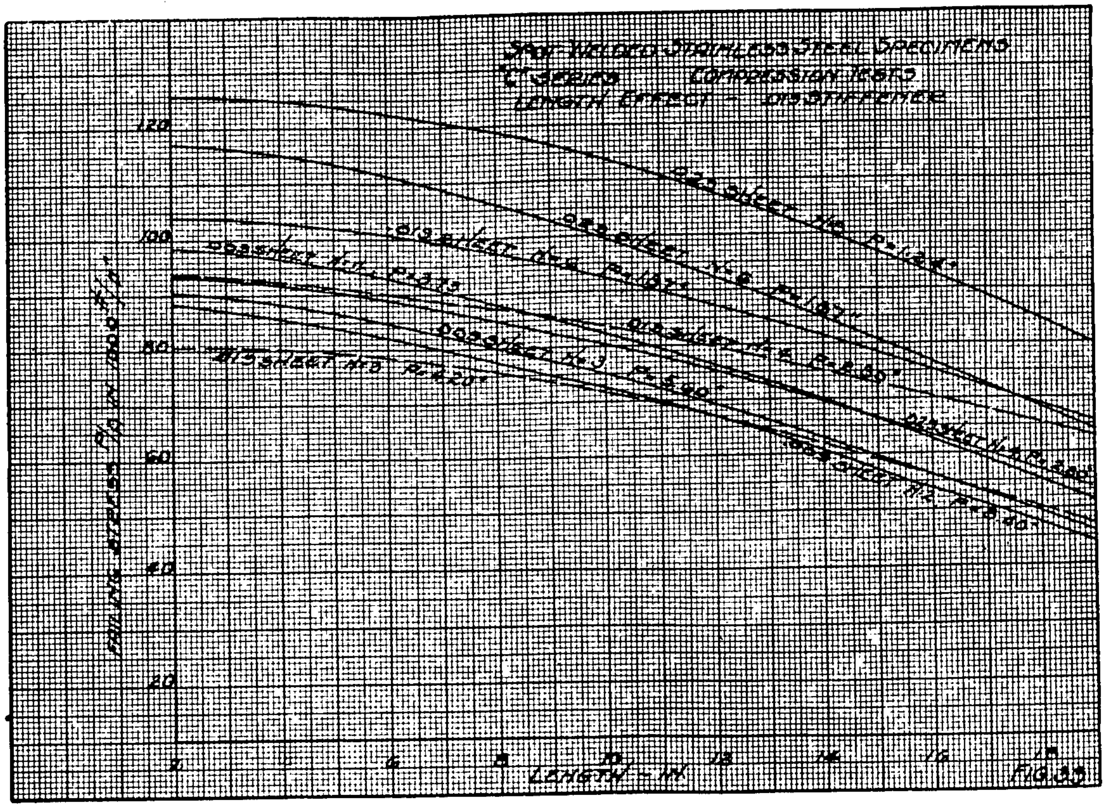
FIG. 28


SPOT WELDED STAINLESS STEEL SPECIMENS
"D" SERIES — COMPRESSION TESTS
LENGTH EFFECT - .029 STIFFENER .029 SHEET
FAILING LOAD - P - 1000#
LENGTH - IN.
n=6 P=1.87
n=4 P=2.81
n=3 P=4.22
FIG. 29

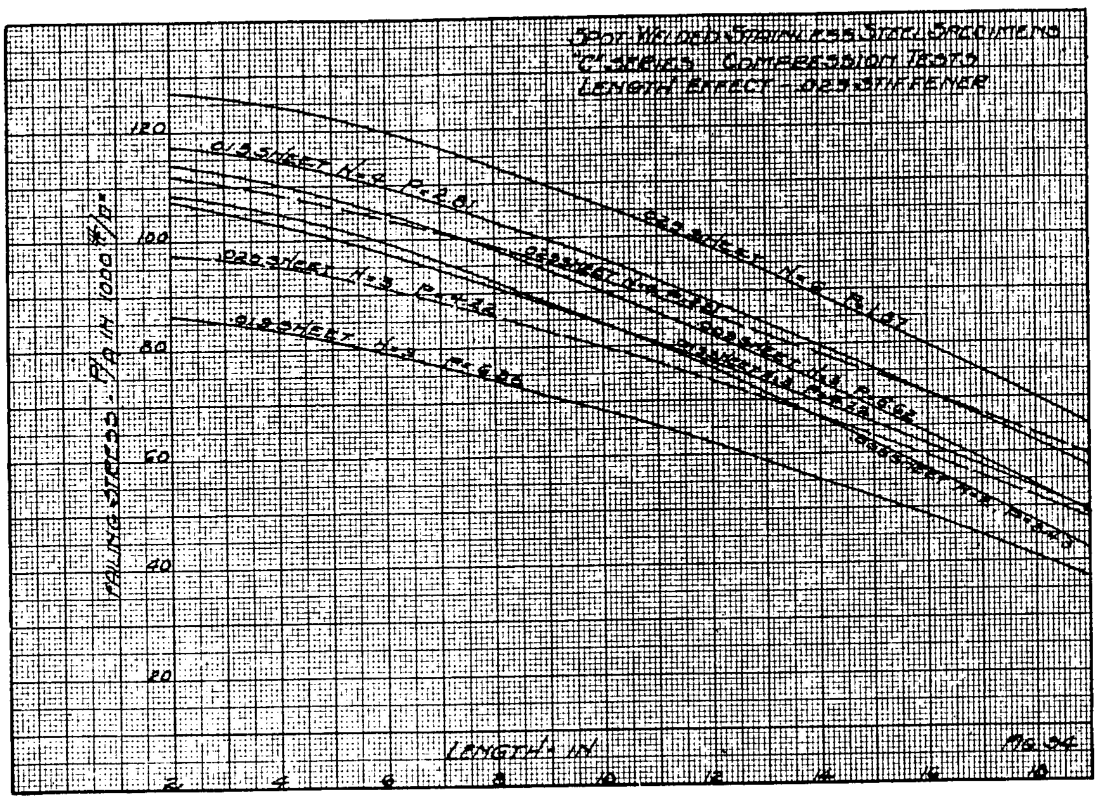

SPOT-WELDED STAINLESS STEEL SPECIMENS
'C' SERIES COMPRESSION TESTS
LENGTH EFFECT - .029 STIFFENER
FAILING LOAD P - 1000 LBS.
LENGTH - INS.
FIG. 30


SPOT-WELDED STAINLESS STEEL TEST SPECIMENS
"C" SERIES COMPRESSION TESTS
LENGTH EFFECT - .019 STIFFENER
.019 SHEET N=4 P=2.80"
.019 SHEET N=3 P=4.20"
.009 SHEET N=4 P=4.20"
.009 SHEET N=3 P=5.60"
.009 SHEET N=2 P=8.40"
FAILING LOAD-P-1000 #
LENGTH - IN
110
100
90
80
70
60
50
40
30
20
10
2
4
6
8
10
12
14
16
18
FIG. 31


SPOT-WELDED STAINLESS STEEL TEST SPECIMENS
"C" SERIES COMPRESSION TESTS
LENGTH EFFECT - .019 STIFFENER
.028-.031 SHEET N=8 P=1.24"
.028-.031 SHEET N=6 P=1.87"
.018-.020 SHEET N=6 P=1.87"
.028-.031 SHEET N=4 P=2.80"
.018-.020 SHEET N=4 P=2.80"
.018-.020 SHEET N=3 P=4.20"
FAILING LOAD - P - 1000 #
LENGTH - IN.
100
90
80
70
60
50
40
30
20
10
2
4
6
8
10
12
14
16
18
FIG. 32



SPOT WELDED STAINLESS STEEL SPECIMENS
"C" SERIES COMPRESSION TESTS
LENGTH EFFECT - .015 STIFFENER
120
100
80
60
40
20
FAILING STRESS P/A IN 1000 #/□"
2
6
8
10
12
14
16
18
LENGTH - IN
FIG. 33



SPOT WELDED STAINLESS STEEL SPECIMENS
"C" SERIES COMPRESSION TESTS
LENGTH EFFECT - .025 STIFFENER
120
100
80
60
40
20
FAILING STRESS - P/A IN 1000 #/□"
2
4
6
8
10
12
14
16
18
LENGTH - IN
FIG. 34

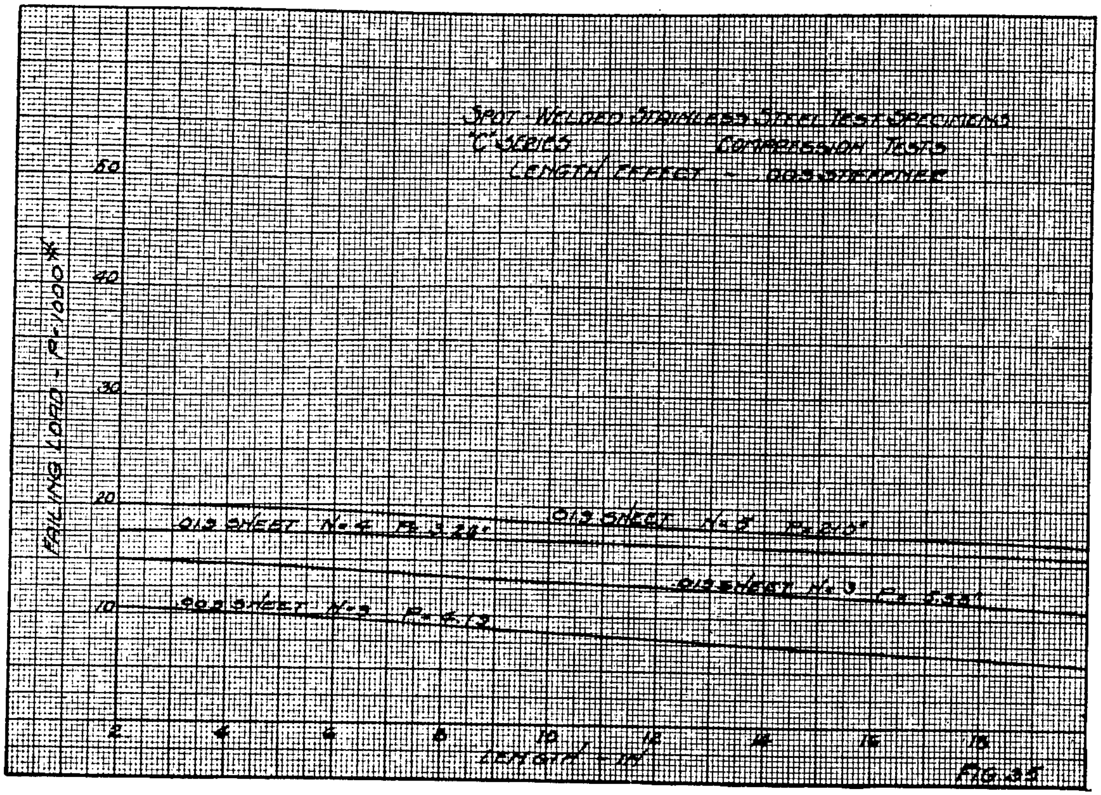

SPOT-WELDED STAINLESS STEEL TEST SPECIMENS
"C" SERIES
COMPRESSION TESTS
LENGTH EFFECT - .003 STIFFENER
FAILING LOAD - P-1000#
LENGTH - IN

FIG. 35

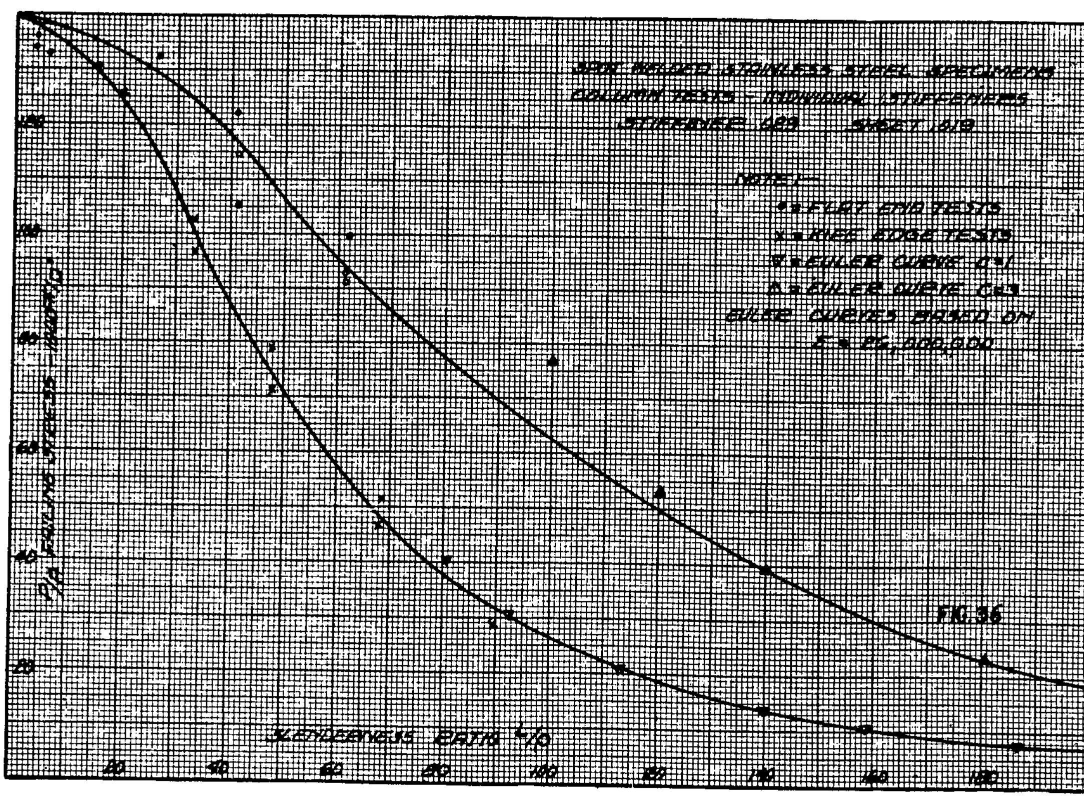

SPOT WELDED STAINLESS STEEL SPECIMENS
COLUMN TESTS - INDIVIDUAL STIFFENERS
STIFFENER .003 SHEET .019
NOTE:-
• = FLAT END TESTS
x = KNIFE EDGE TESTS
EULER CURVE C=1
Δ = EULER CURVE C=3
EULER CURVES BASED ON
E = 26,000,000
SLENDERNESS RATIO L/ρ

FIG. 36

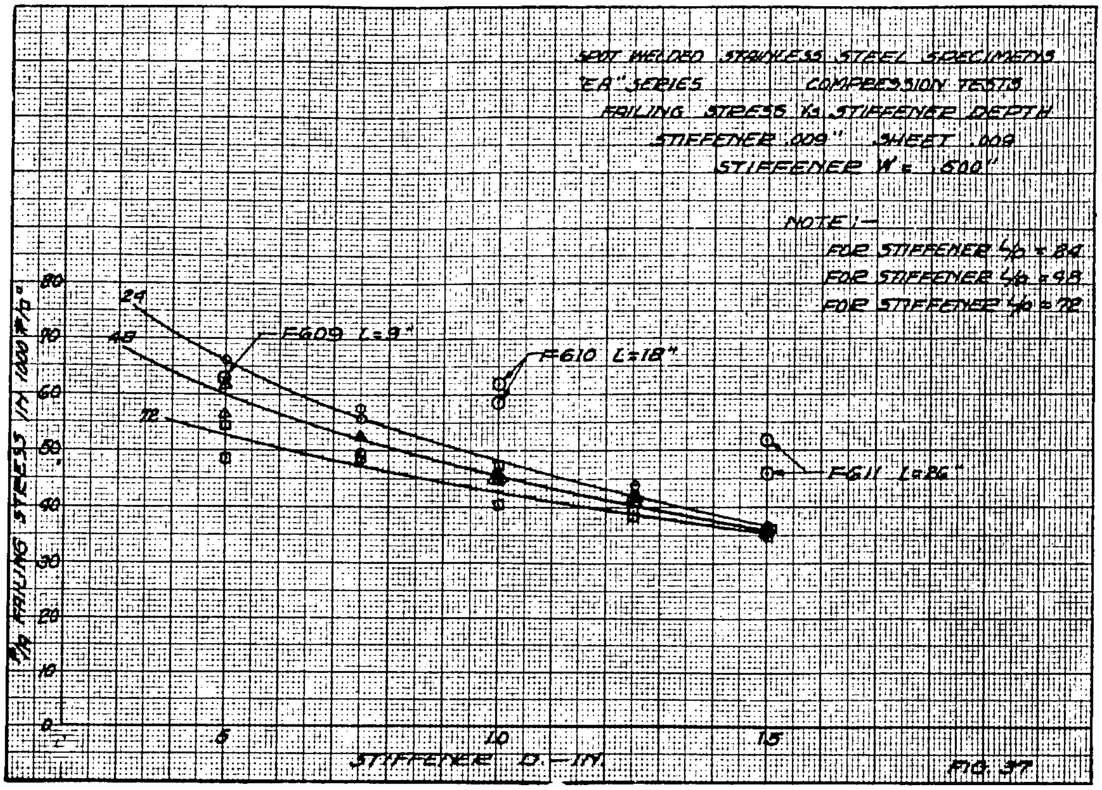

SPOT WELDED STAINLESS STEEL SPECIMENS
"EA" SERIES COMPRESSION TESTS
FAILING STRESS Vs STIFFENER DEPTH
STIFFENER .009" SHEET .009
STIFFENER W = .500"
NOTE:—
FOR STIFFENER L/ρ = 24
FOR STIFFENER L/ρ = 48
FOR STIFFENER L/ρ = 72
F609 L=9"
F610 L=18"
F611 L=26"
24
48
72
P/A FAILING STRESS IN 1000 #/□"
0
10
20
30
40
50
60
70
80
.5
1.0
1.5
STIFFENER D — IN.

FIG. 37

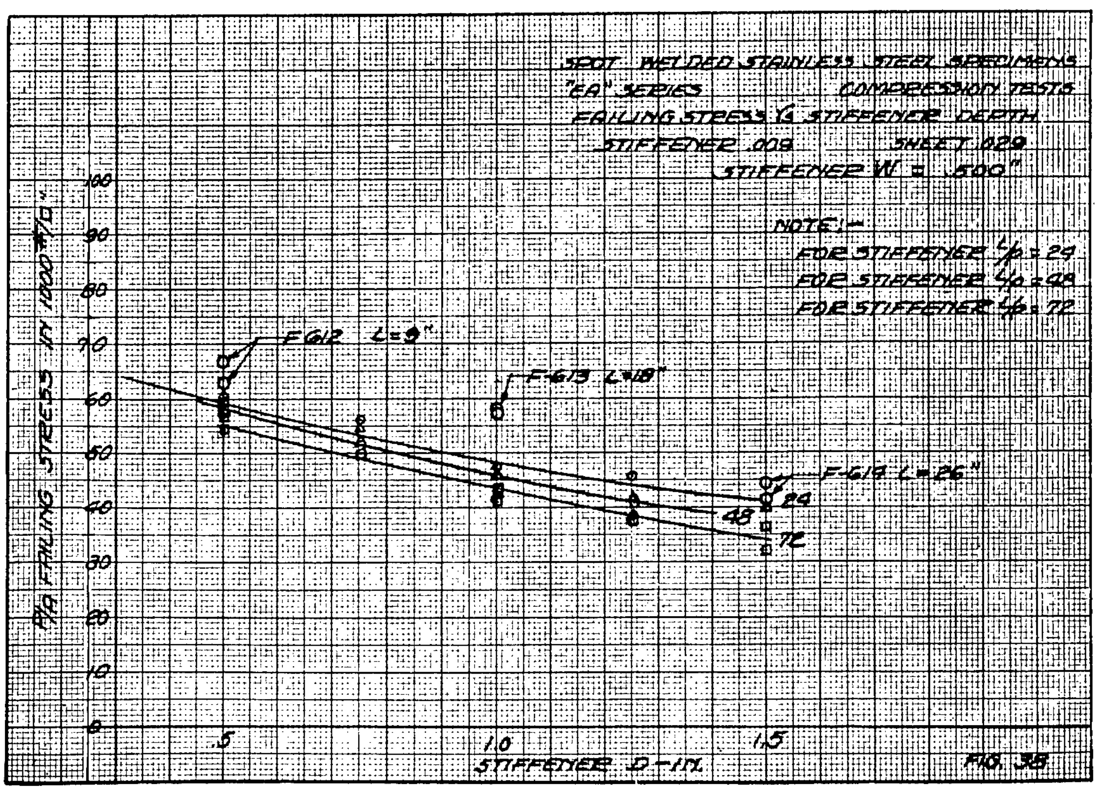

SPOT WELDED STAINLESS STEEL SPECIMENS
"EA" SERIES COMPRESSION TESTS
FAILING STRESS Vs STIFFENER DEPTH
STIFFENER .009 SHEET .029
STIFFENER W = .500"
NOTE:—
FOR STIFFENER L/ρ = 24
FOR STIFFENER L/ρ = 48
FOR STIFFENER L/ρ = 72
F612 L=9"
F613 L=18"
F614 L=26"
24
48
72
P/A FAILING STRESS IN 1000 #/□"
0
10
20
30
40
50
60
70
80
90
100
.5
1.0
1.5
STIFFENER D — IN.

FIG. 38

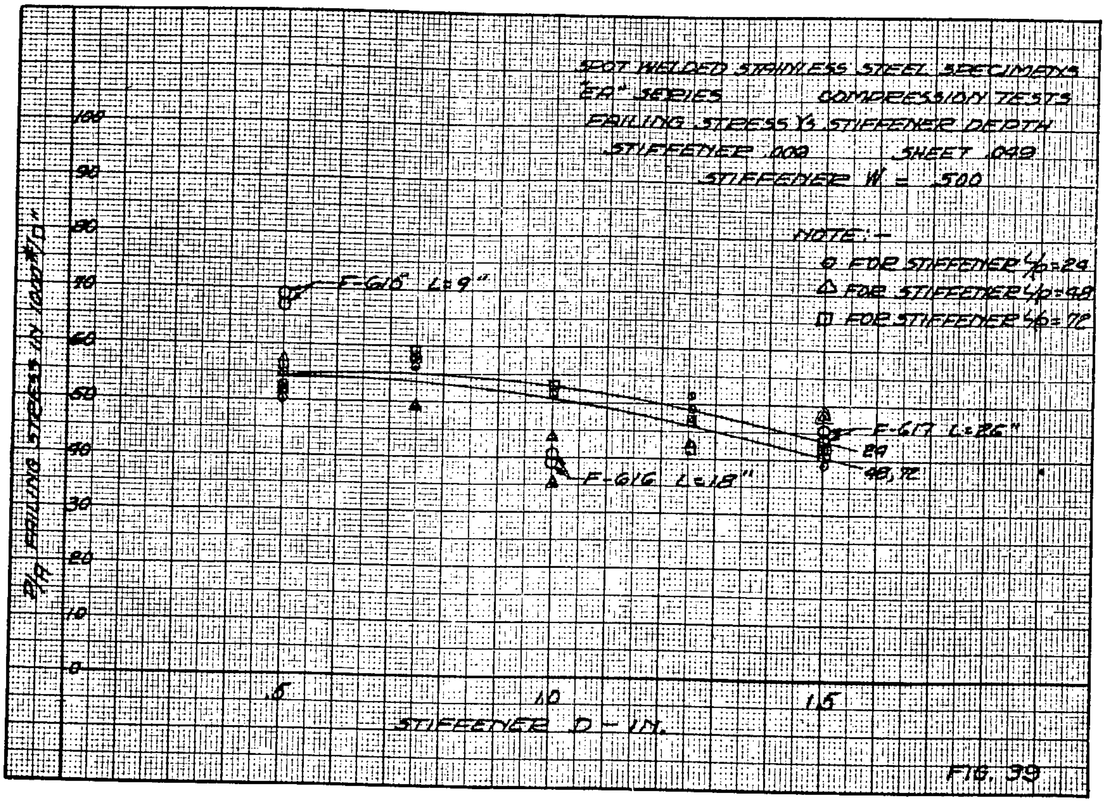

SPOT WELDED STAINLESS STEEL SPECIMENS
"EA" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER DEPTH
STIFFENER .020 SHEET .049
STIFFENER W = .500
NOTE: -
O FOR STIFFENER L/D = 24
△ FOR STIFFENER L/D = 48
□ FOR STIFFENER L/D = 72
F-615 L=9"
F-616 L=18"
F-617 L=26"
24
48, 72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER D - IN.

FIG. 39

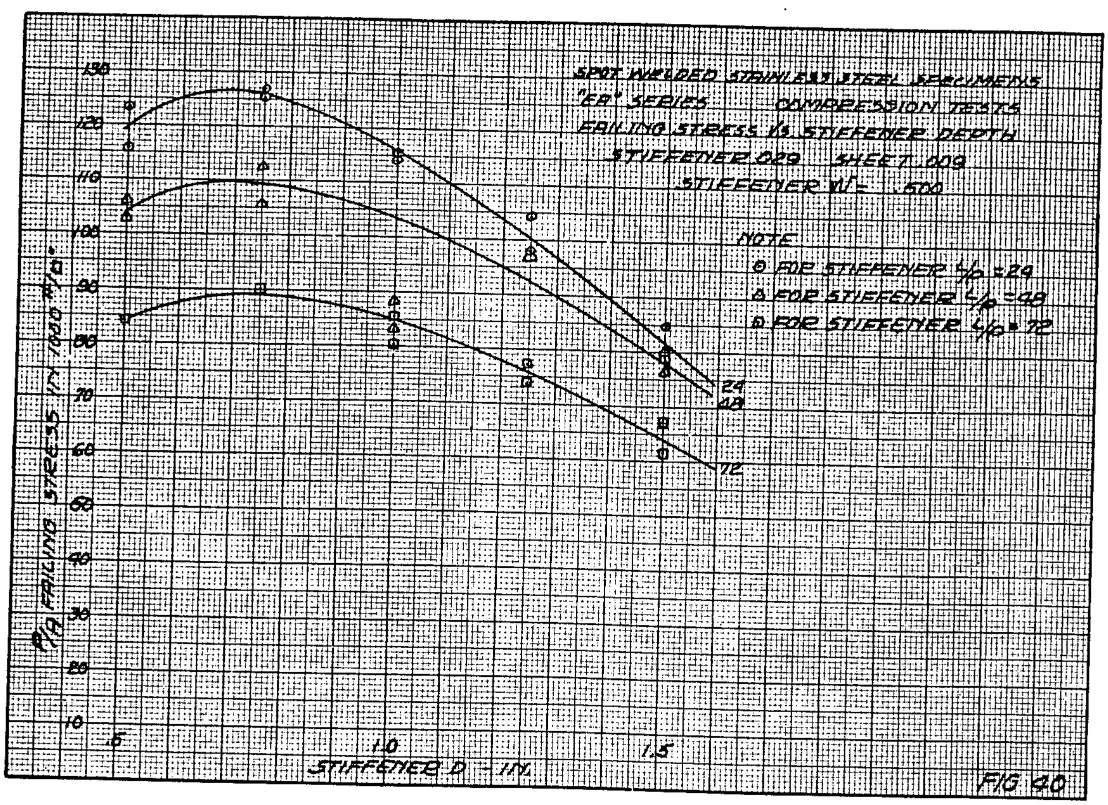

SPOT WELDED STAINLESS STEEL SPECIMENS
"EA" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER DEPTH
STIFFENER .029 SHEET .009
STIFFENER W = .500
NOTE
O FOR STIFFENER L/D = 24
△ FOR STIFFENER L/D = 48
□ FOR STIFFENER L/D = 72
24
48
72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER D - IN.

FIG 40

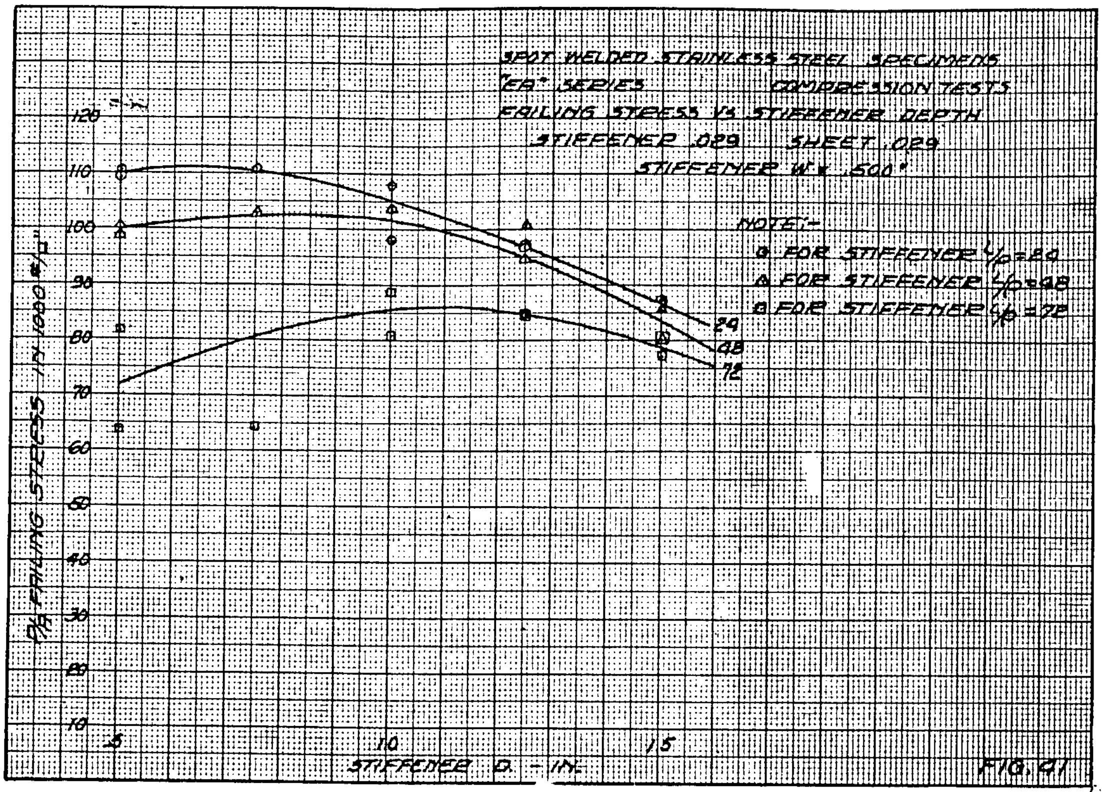

SPOT WELDED STAINLESS STEEL SPECIMENS
"ER" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER DEPTH
STIFFENER .029 SHEET .029
STIFFENER W = .500"
NOTE:-
FOR STIFFENER L/D = 24
FOR STIFFENER L/D = 48
FOR STIFFENER L/D = 72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER D. - IN.

FIG. 41

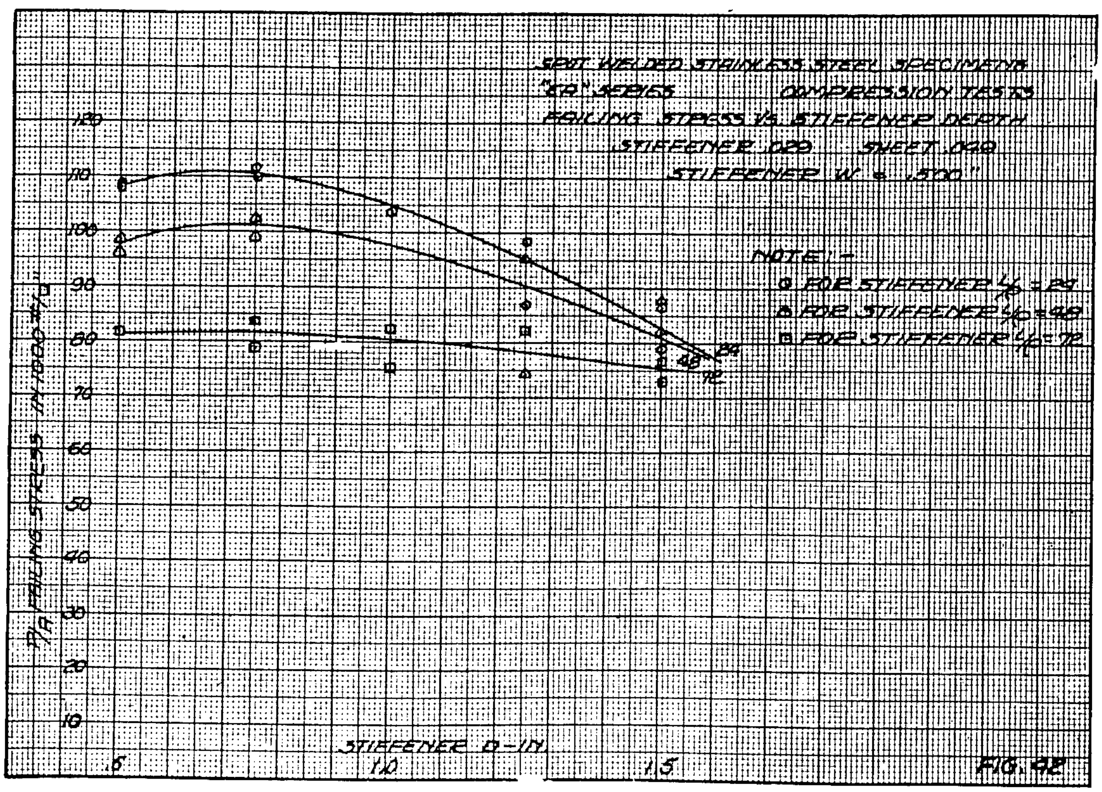
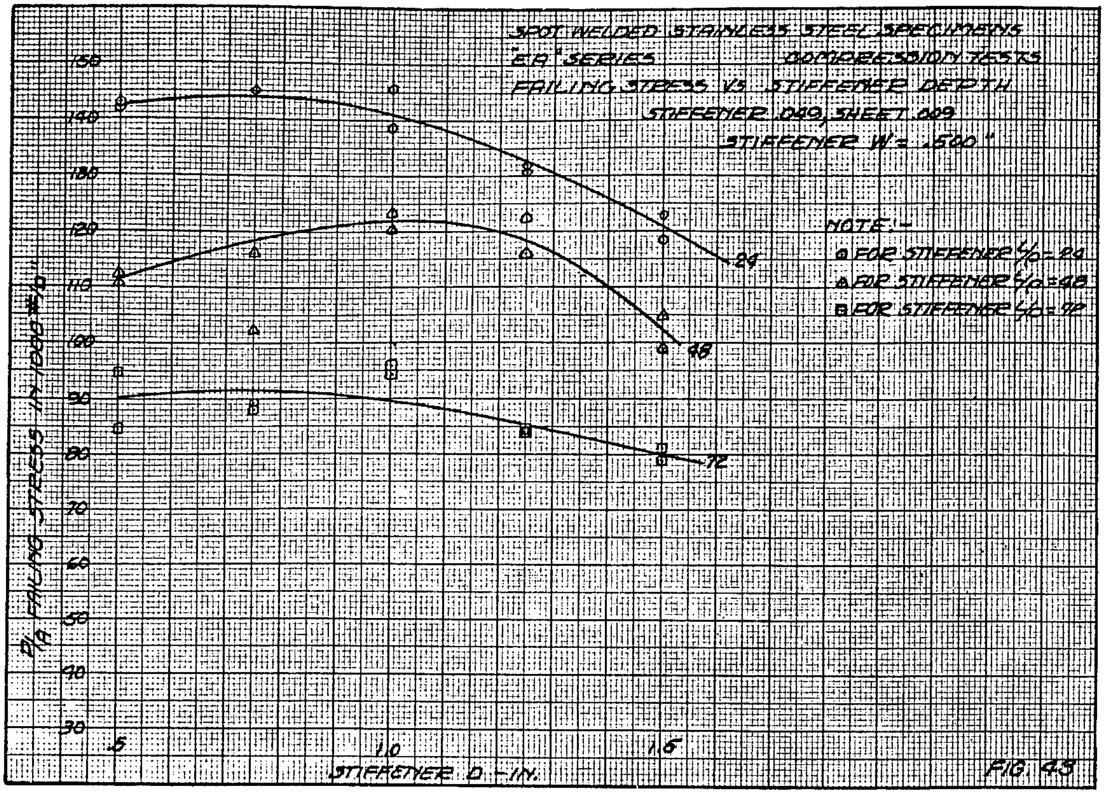
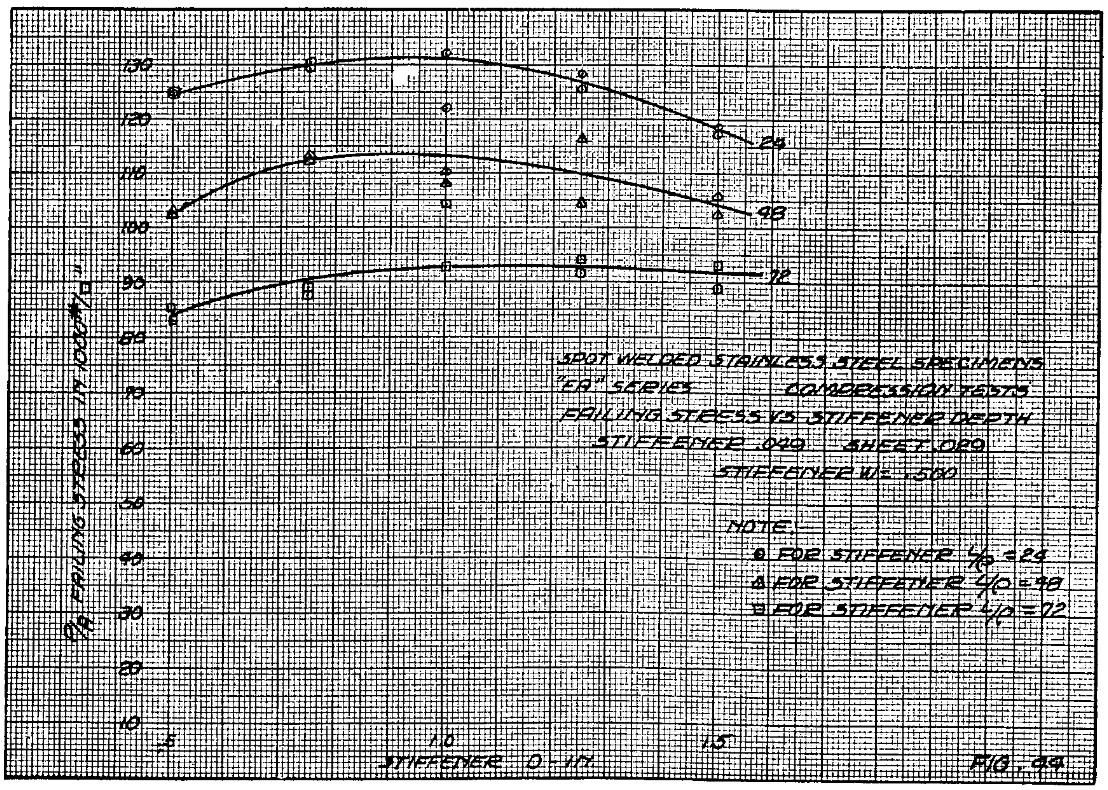

SPOT WELDED STAINLESS STEEL SPECIMENS
"ER" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER DEPTH
STIFFENER .029 SHEET .040
STIFFENER W = .500"
NOTE:-
FOR STIFFENER L/D = 24
FOR STIFFENER L/D = 48
FOR STIFFENER L/D = 72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER D - IN.

FIG. 42


SPOT WELDED STAINLESS STEEL SPECIMENS
"ER" SERIES
COMPRESSION TESTS
FAILING STRESS VS STIFFENER DEPTH
STIFFENER .049, SHEET .009
STIFFENER W = .500"
NOTE:-
FOR STIFFENER L/D = 24
FOR STIFFENER L/D = 48
FOR STIFFENER L/D = 72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER D - IN.
24
48
72
FIG. 43


SPOT WELDED STAINLESS STEEL SPECIMENS
"ER" SERIES
COMPRESSION TESTS
FAILING STRESS VS STIFFENER DEPTH
STIFFENER .020 SHEET .020
STIFFENER W = .500
NOTE:-
FOR STIFFENER L/D = 24
FOR STIFFENER L/D = 48
FOR STIFFENER L/D = 72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER D - IN.
24
48
72
FIG. 44

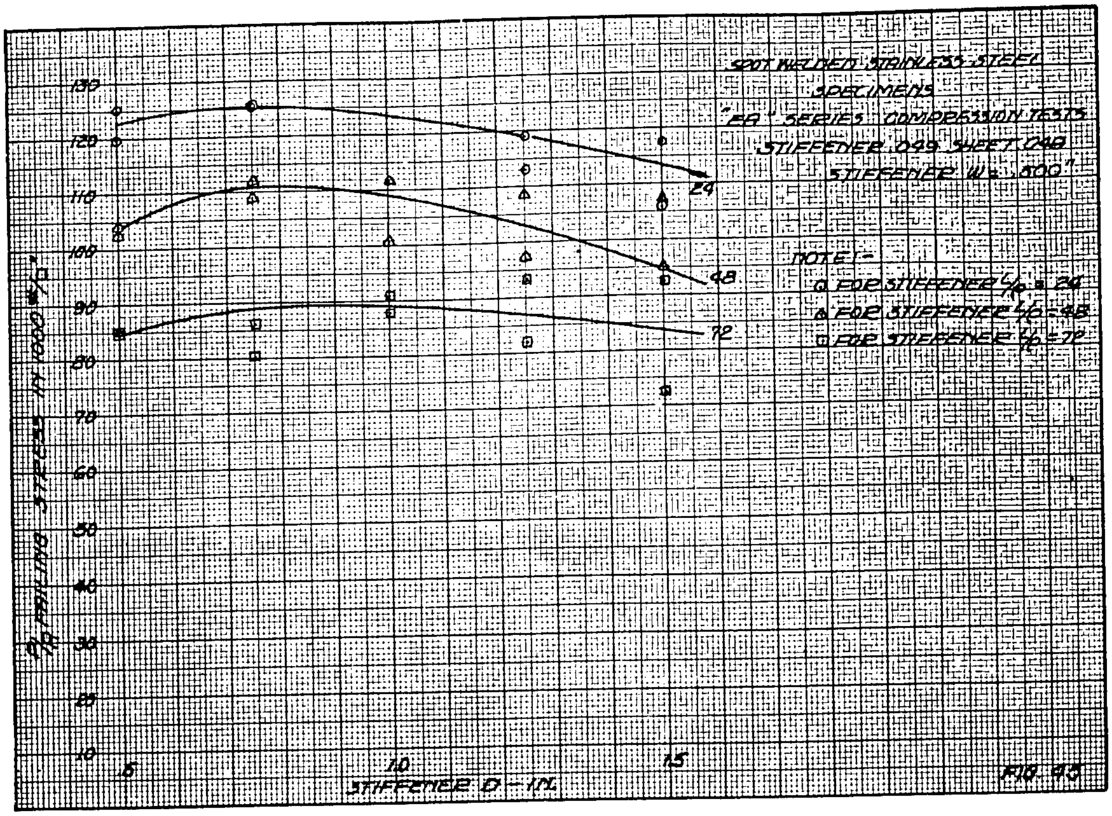

SPOT WELDED STAINLESS STEEL
SPECIMENS
"EA" SERIES COMPRESSION TESTS
STIFFENER .049 SHEET .049
STIFFENER W = .500"
NOTE:-
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
24
48
72
P/A FAILING STRESS IN 1000 #/□"
130
120
110
100
90
80
70
60
50
40
30
20
10
.5
1.0
1.5
STIFFENER D – IN.

FIG. 45

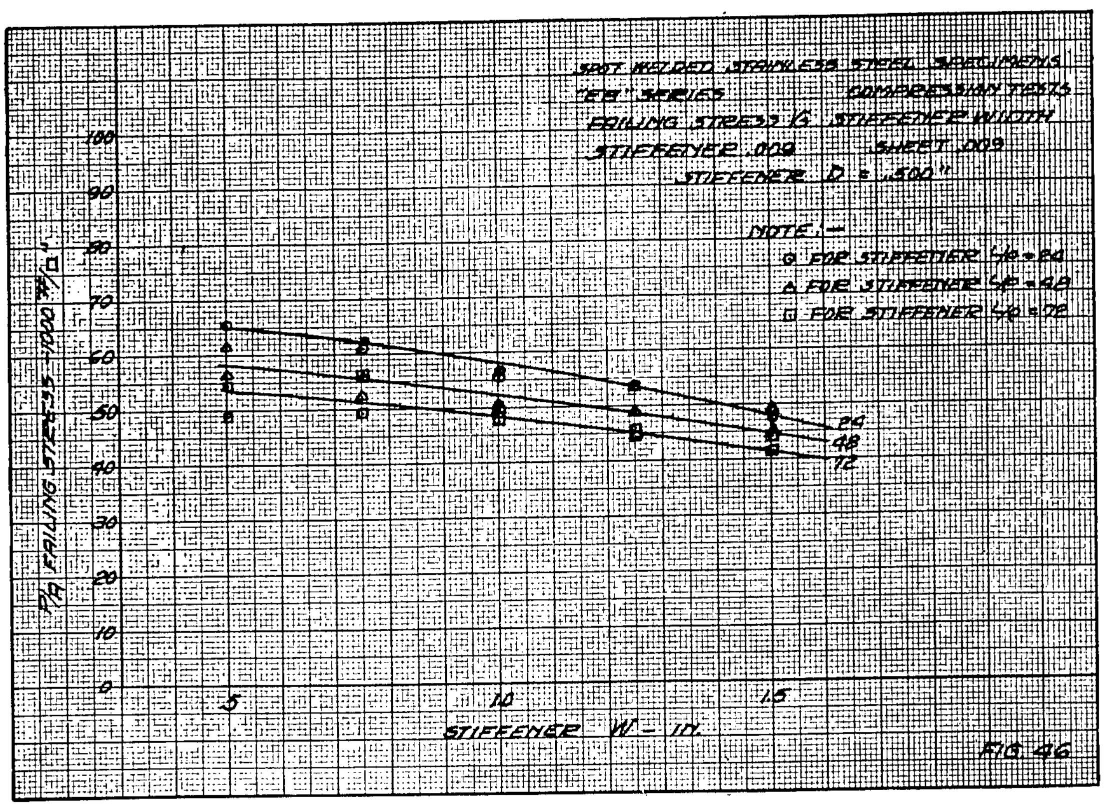

SPOT WELDED STAINLESS STEEL SPECIMENS
"EB" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER WIDTH
STIFFENER .009 SHEET .009
STIFFENER D = .500"
NOTE:—
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
24
48
72
P/A FAILING STRESS 1000 #/□"
100
90
80
70
60
50
40
30
20
10
0
.5
1.0
1.5
STIFFENER W – IN.

FIG. 46

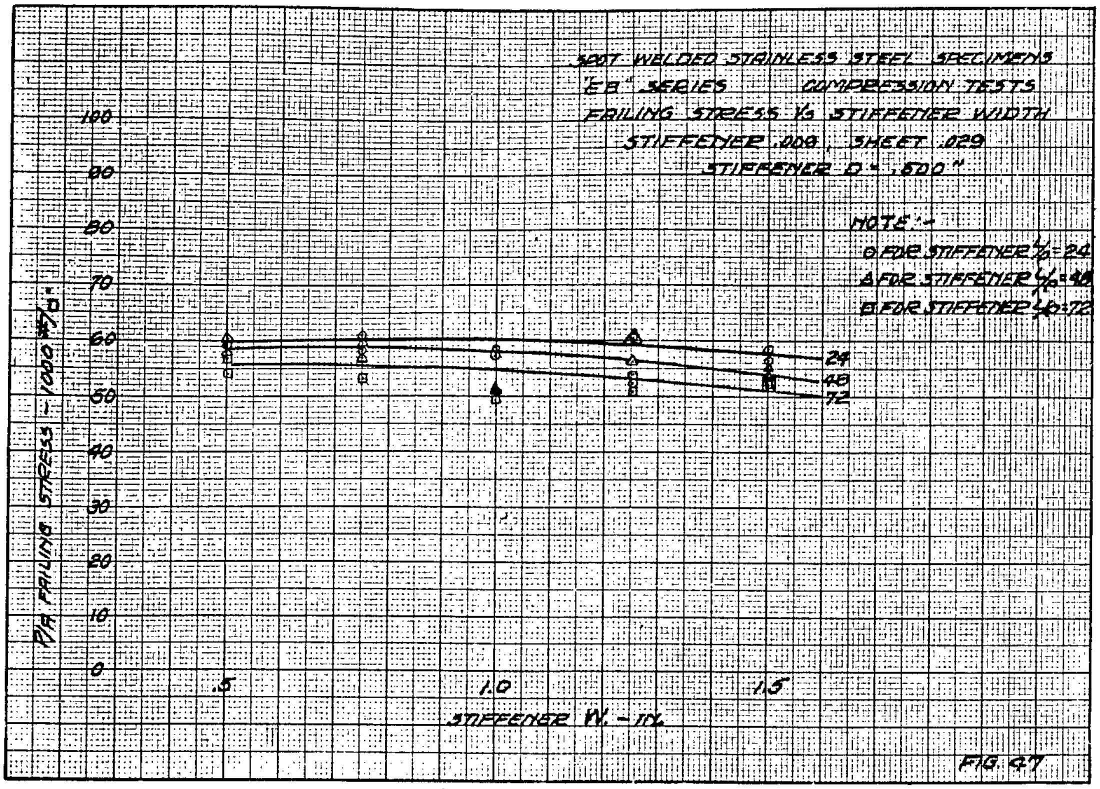

SPOT WELDED STAINLESS STEEL SPECIMENS
"EB" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER WIDTH
STIFFENER .009 SHEET .029
STIFFENER D = .500"
NOTE:-
⊙ FOR STIFFENER L/ρ=24
△ FOR STIFFENER L/ρ=48
⊡ FOR STIFFENER L/ρ=72
P/A FAILING STRESS - 1000 #/□"
STIFFENER W. - IN.

FIG. 47

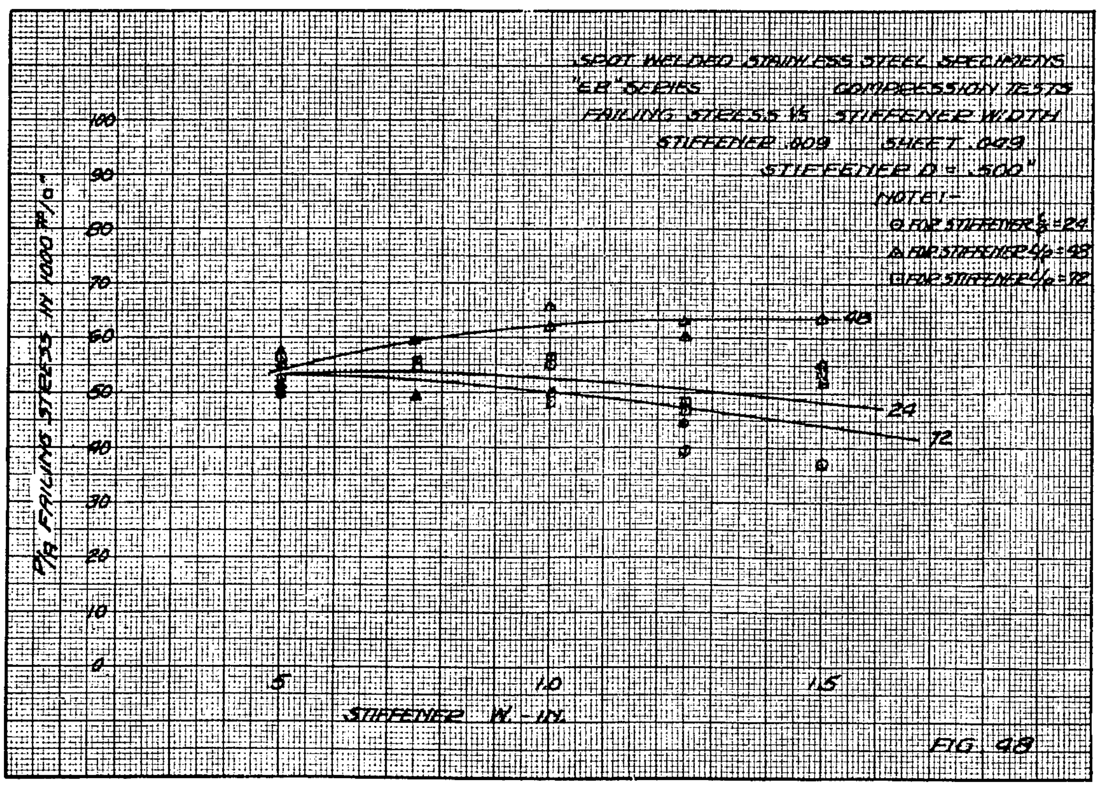
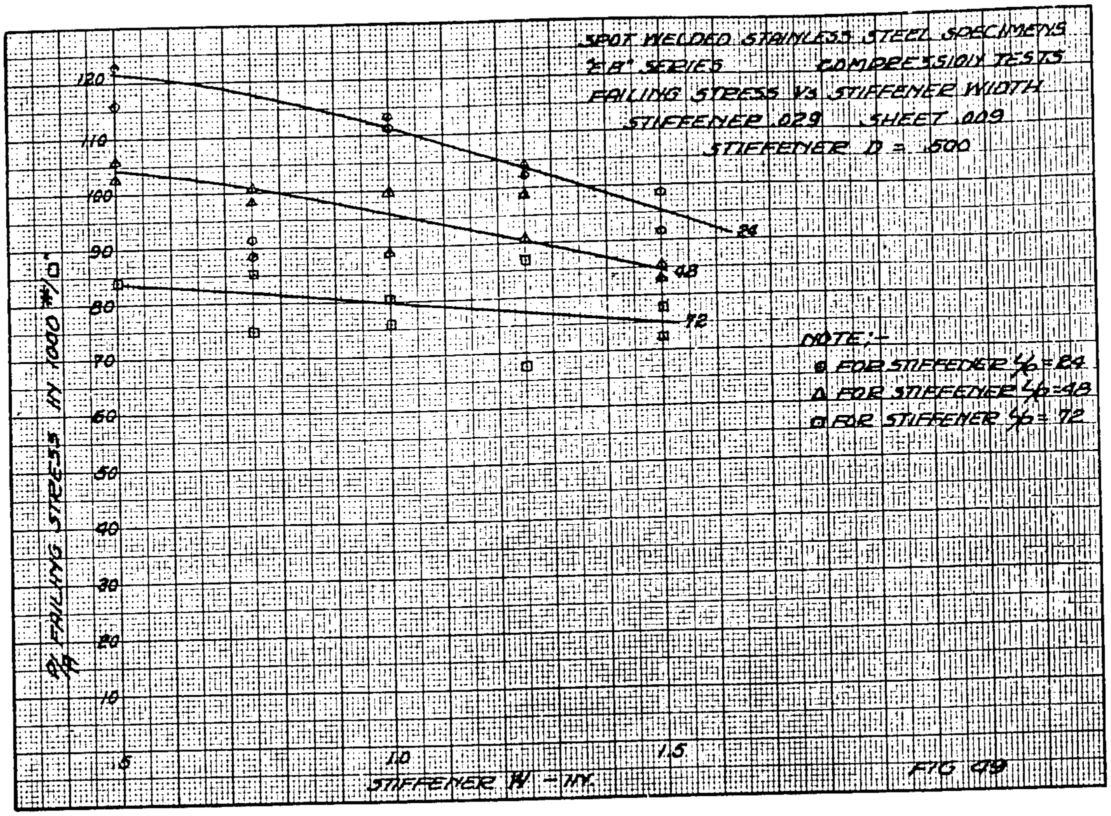
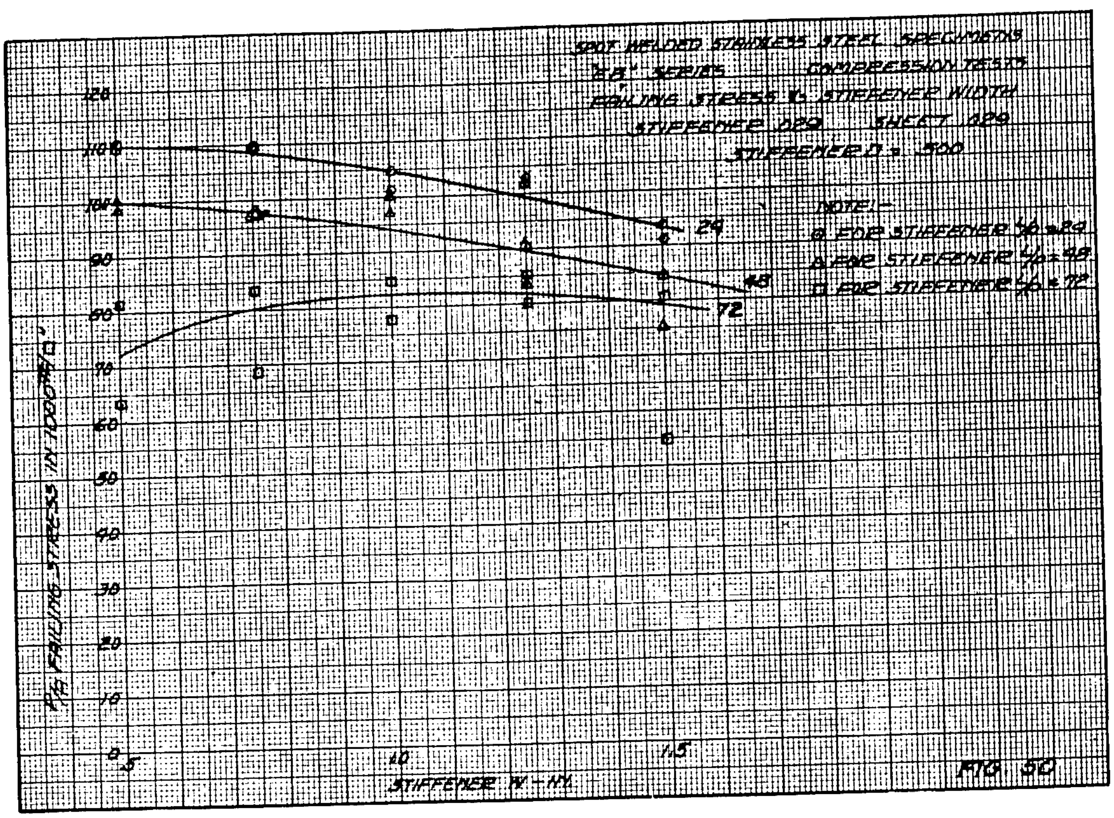

SPOT WELDED STAINLESS STEEL SPECIMENS
"EB" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER WIDTH
STIFFENER .009 SHEET .029
STIFFENER D = .500"
NOTE:-
⊙ FOR STIFFENER L/ρ=24
△ FOR STIFFENER L/ρ=48
⊡ FOR STIFFENER L/ρ=72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER W. - IN.

FIG. 48



SPOT WELDED STAINLESS STEEL SPECIMENS
"B" SERIES COMPRESSION TESTS
FAILING STRESS Vs STIFFENER WIDTH
STIFFENER .029 SHEET .009
STIFFENER D = .500
NOTE:-
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
24
48
72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER W - IN.

FIG 49



SPOT WELDED STAINLESS STEEL SPECIMENS
"B" SERIES COMPRESSION TESTS
FAILING STRESS Vs STIFFENER WIDTH
STIFFENER .029 SHEET .029
STIFFENER D = .500
NOTE:-
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
24
48
72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER W - IN.

FIG 50

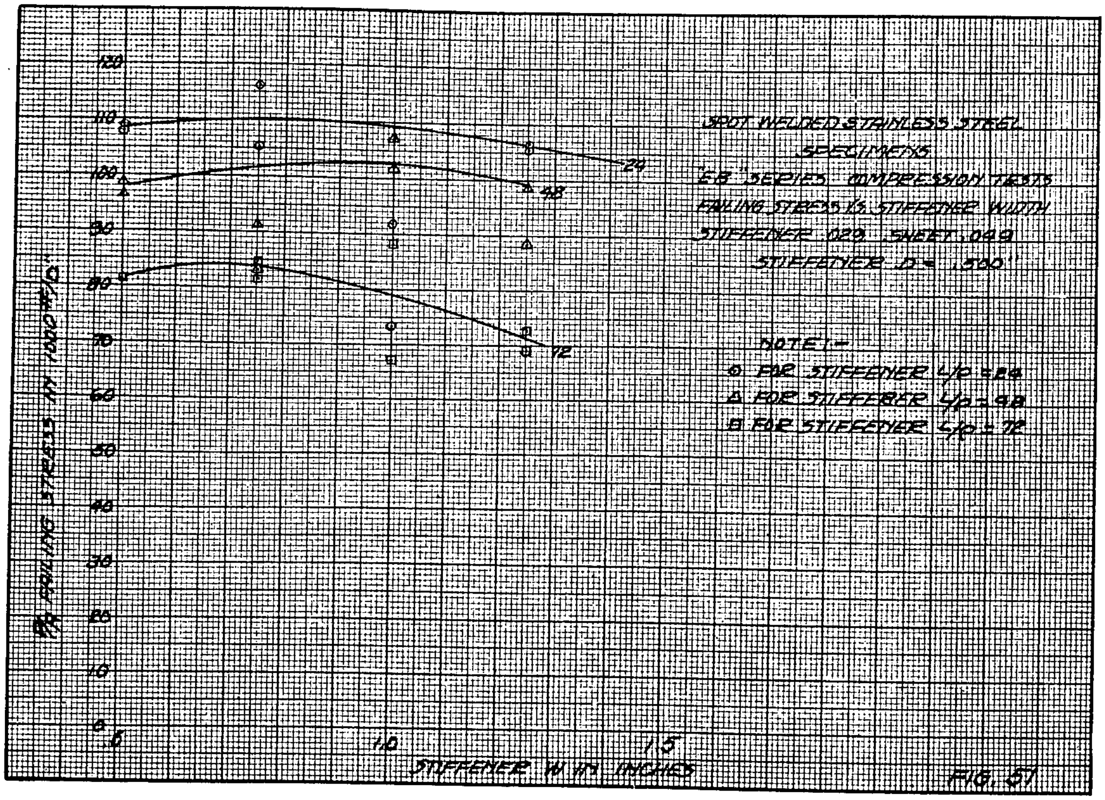

SPOT WELDED STAINLESS STEEL
SPECIMENS
"EB" SERIES COMPRESSION TESTS
FAILING STRESS VS. STIFFENER WIDTH
STIFFENER .020 SHEET .049
STIFFENER D = .500"
NOTE:-
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
FAILING STRESS IN 1000 #/□"
STIFFENER W IN INCHES
120
110
100
90
80
70
60
50
40
30
20
10
0
.5
1.0
1.5
24
48
72

FIG. 51

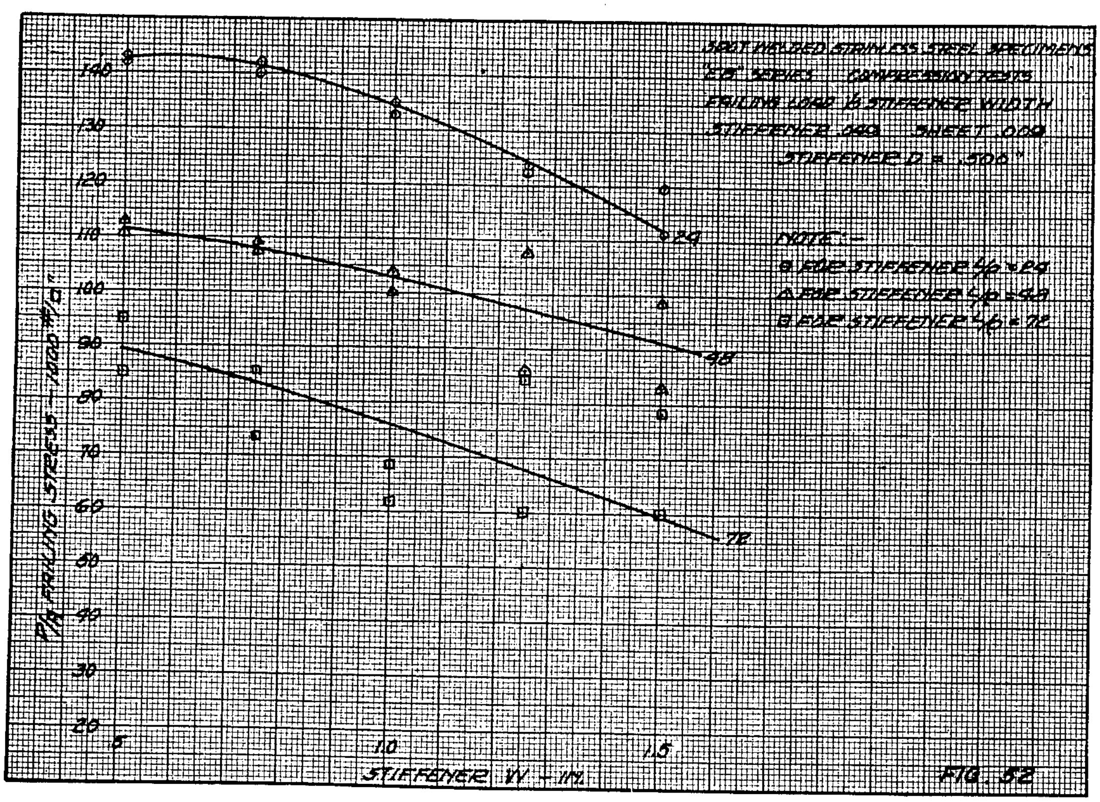

SPOT WELDED STAINLESS STEEL SPECIMENS
"EB" SERIES COMPRESSION TESTS
FAILING LOAD VS STIFFENER WIDTH
STIFFENER .049 SHEET .020
STIFFENER D = .500"
NOTE:-
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
P/A FAILING STRESS - 1000 #/□"
STIFFENER W - IN.
140
130
120
110
100
90
80
70
60
50
40
30
20
.5
1.0
1.5
24
48
72

FIG. 52

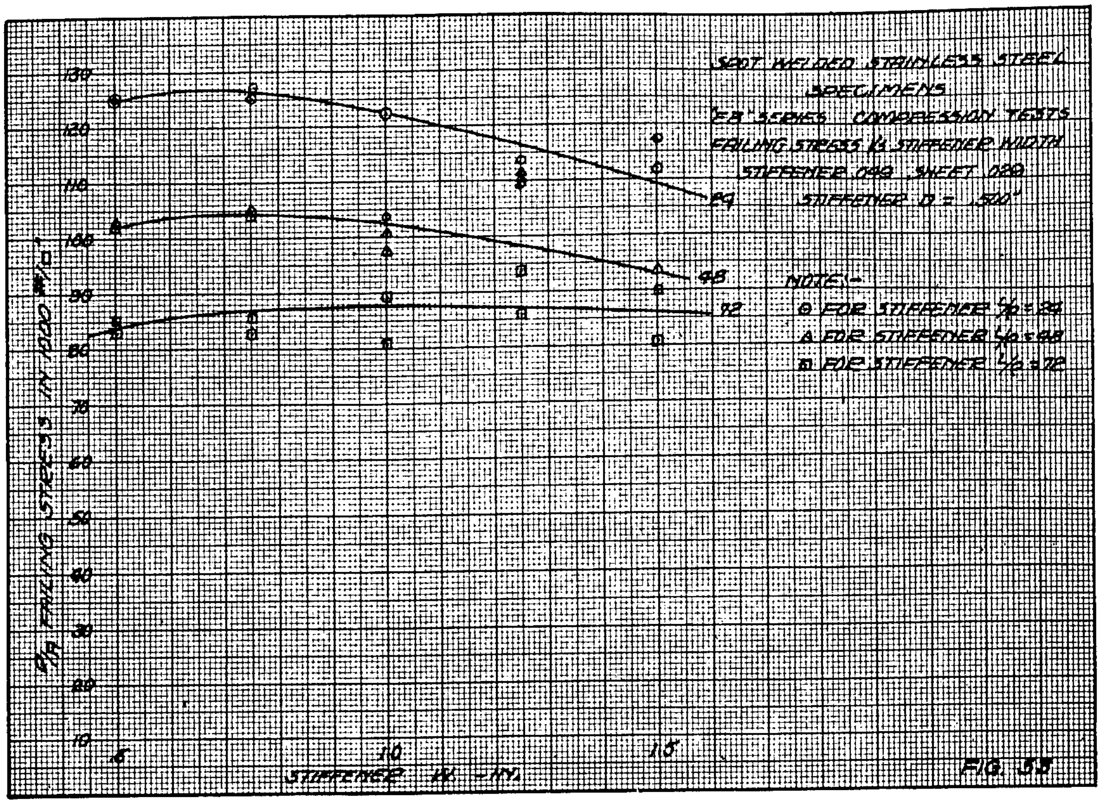

SPOT WELDED STAINLESS STEEL
SPECIMENS
"EB" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER WIDTH
STIFFENER .049 SHEET .020
STIFFENER D = .500"
NOTE:-
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
24
48
72
P/A FAILING STRESS IN 1000 #/□"
130
120
110
100
90
80
70
60
50
40
30
20
10
.5
1.0
1.5
STIFFENER W - IN.

FIG. 53

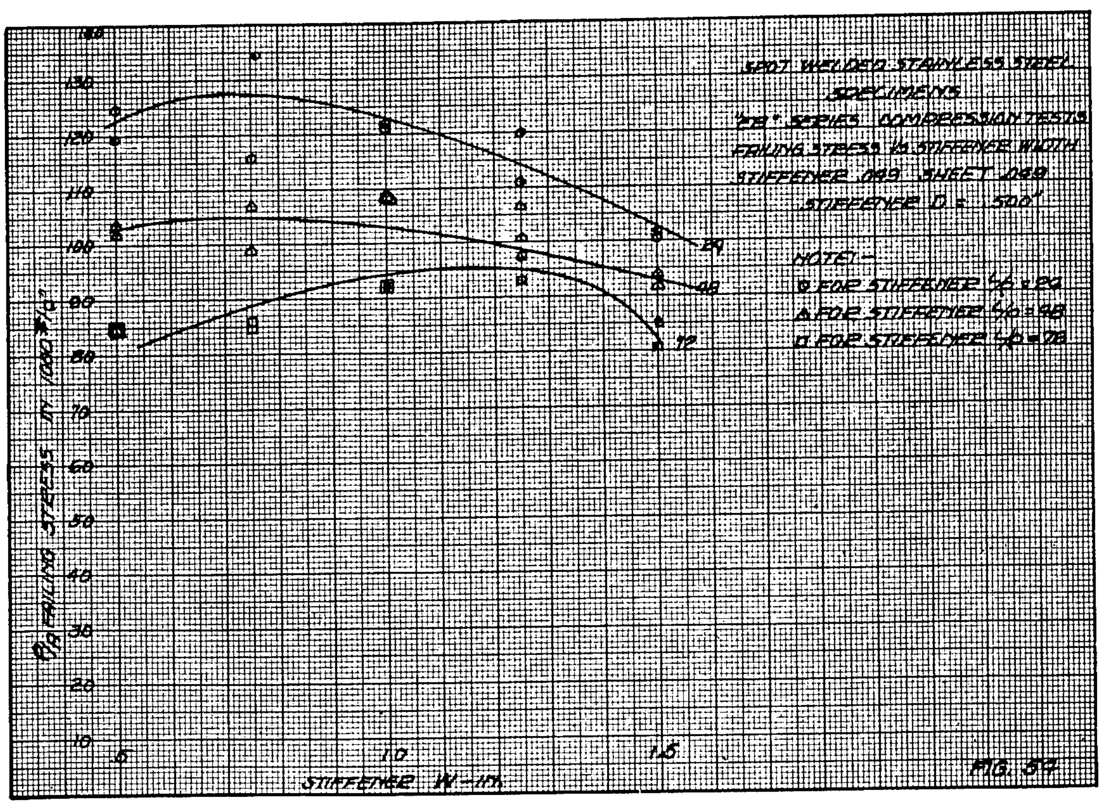

SPOT WELDED STAINLESS STEEL
SPECIMENS
"ZB" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER WIDTH
STIFFENER .049 SHEET .049
STIFFENER D = .500"
NOTE:-
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
24
48
72
P/A FAILING STRESS IN 1000 #/□"
140
130
120
110
100
90
80
70
60
50
40
30
20
10
.5
1.0
1.5
STIFFENER W - IN.

FIG. 54

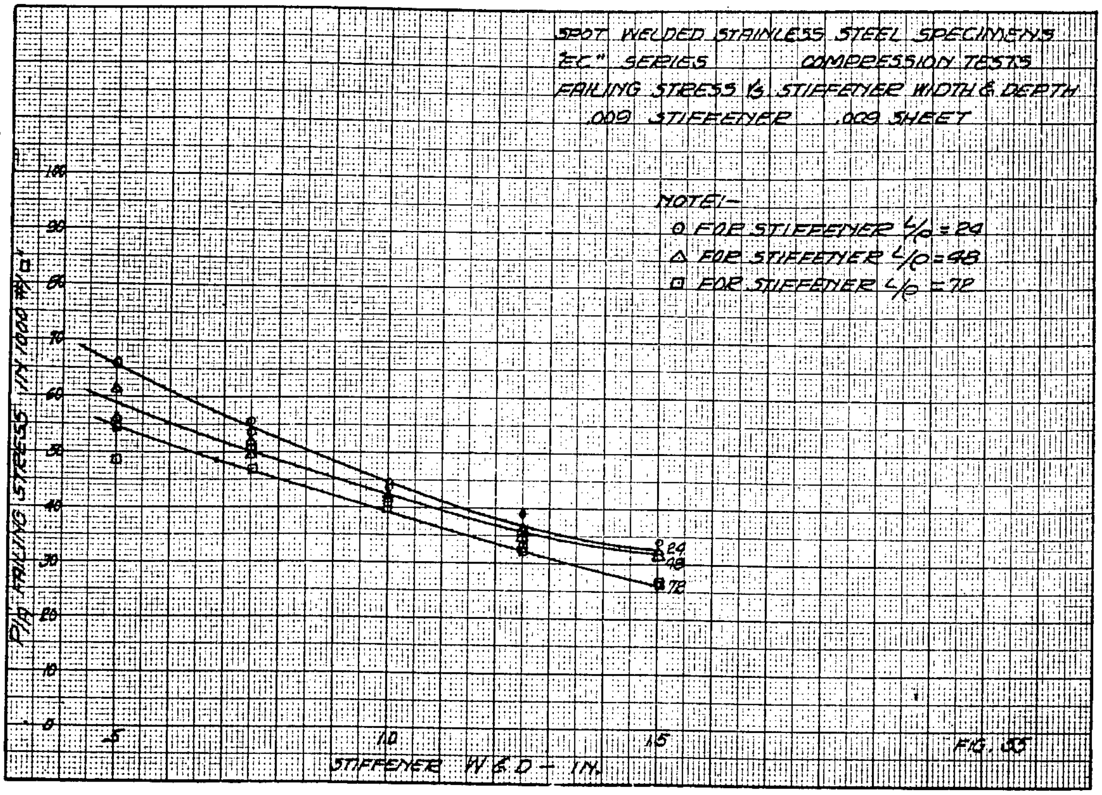

SPOT WELDED STAINLESS STEEL SPECIMENS
"EC" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER WIDTH & DEPTH
.009 STIFFENER .009 SHEET
NOTE:-
O FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER W & D - IN.
24
48
72

FIG. 55

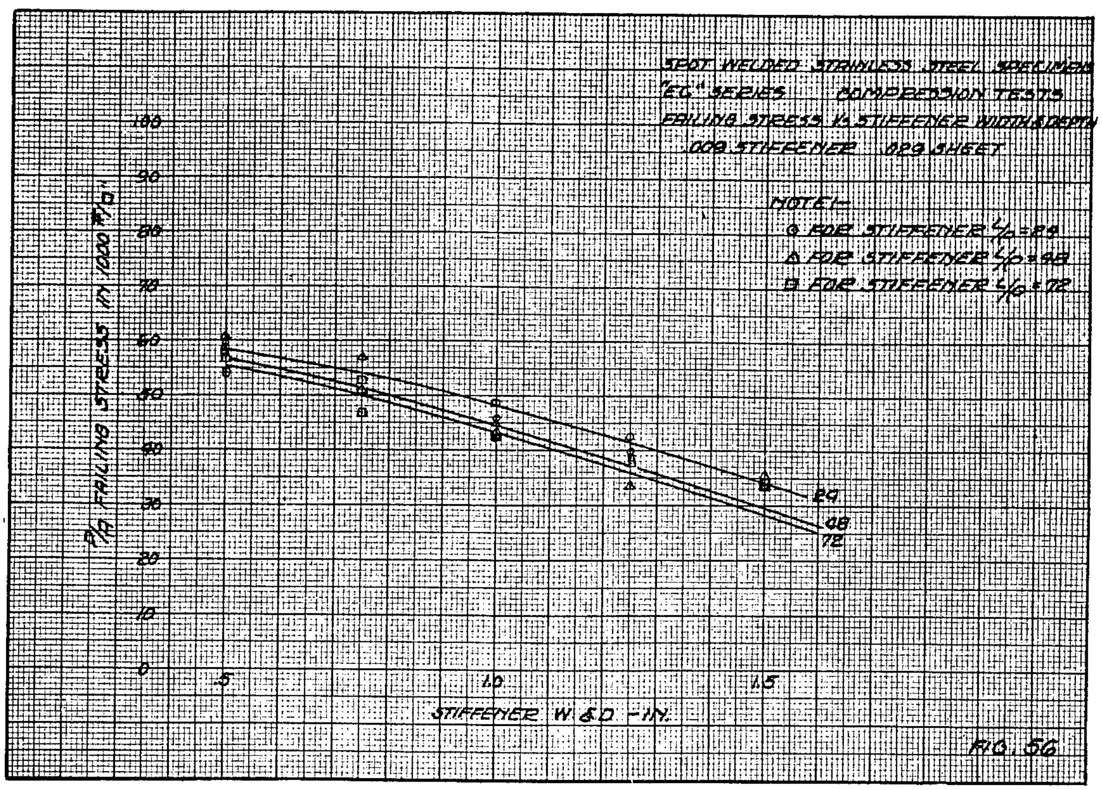
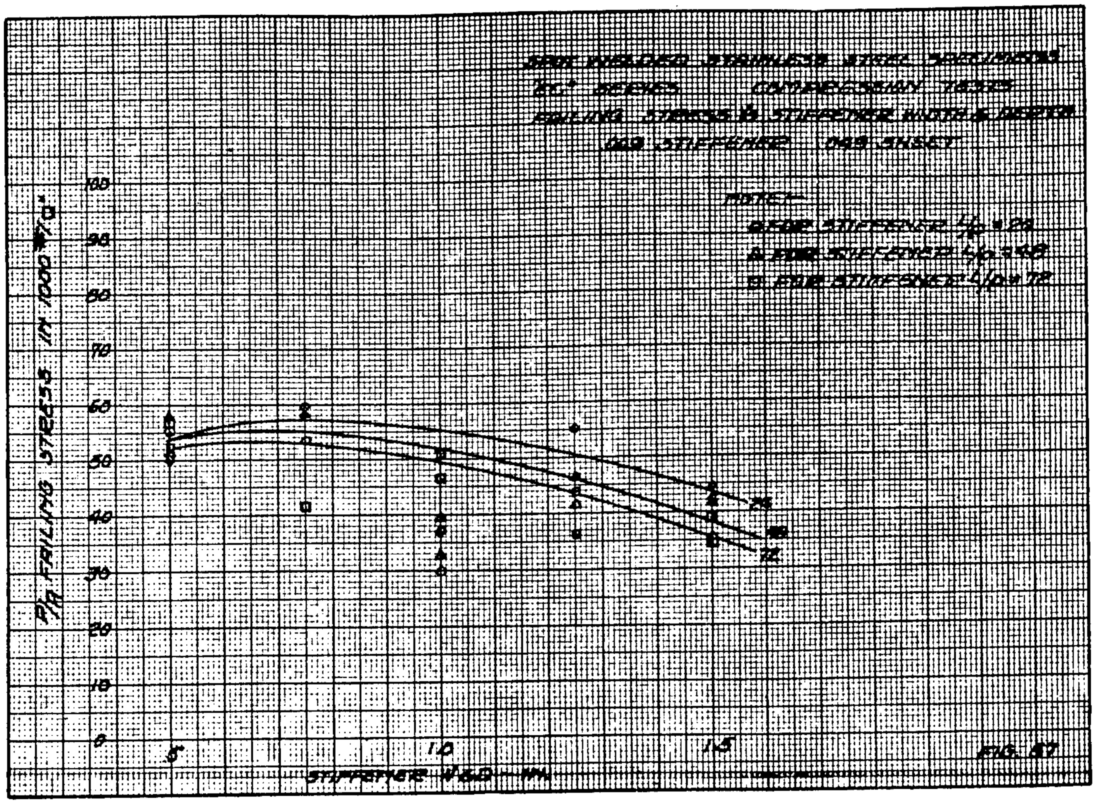
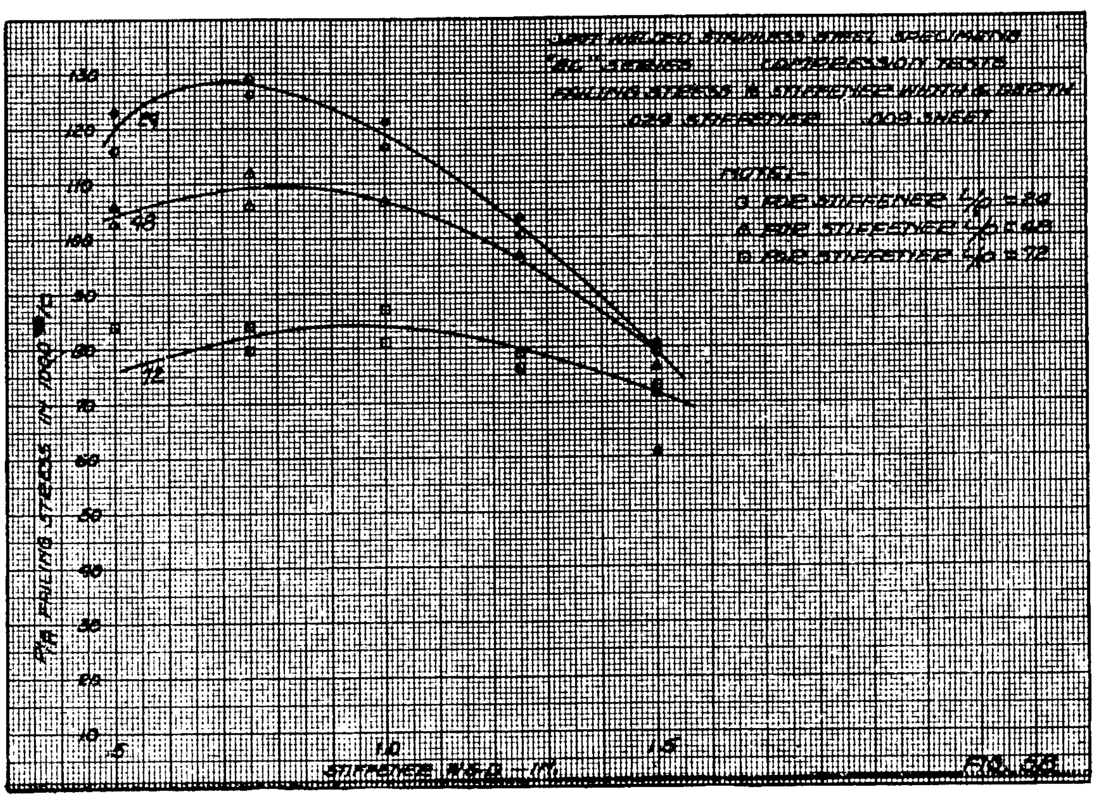

SPOT WELDED STAINLESS STEEL SPECIMENS
"EC" SERIES COMPRESSION TESTS
FAILING STRESS VS STIFFENER WIDTH & DEPTH
.009 STIFFENER .029 SHEET
NOTE:-
O FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER W & D - IN.
24
48
72

FIG. 56


100
90
80
70
60
50
40
30
20
10
0
.5
1.0
1.5
24
48
72
FIG. 57


130
120
110
100
90
80
70
60
50
40
30
20
10
.5
1.0
1.5
24
48
72
FIG. 58

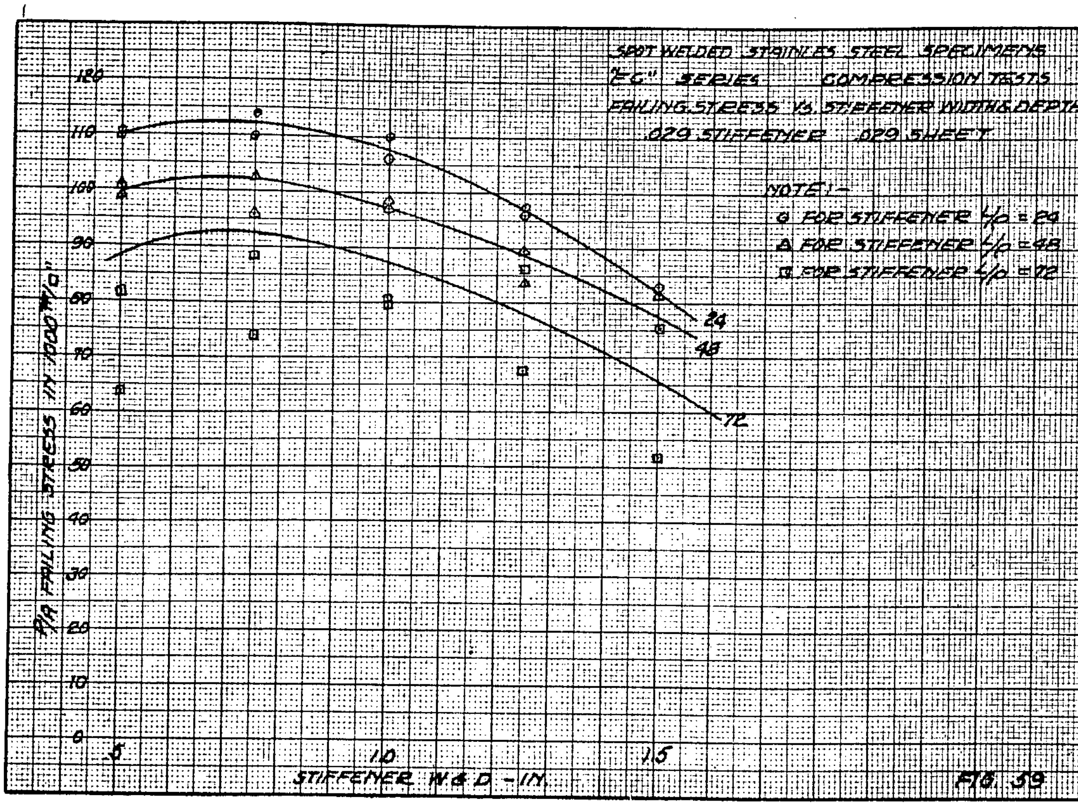

SPOT WELDED STAINLESS STEEL SPECIMENS
"EC" SERIES COMPRESSION TESTS
FAILING STRESS VS. STIFFENER WIDTH & DEPTH
.029 STIFFENER .029 SHEET
NOTE:-
○ FOR STIFFENER L/D = 24
△ FOR STIFFENER L/D = 48
□ FOR STIFFENER L/D = 72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER W & D - IN.
24
48
72

FIG. 59

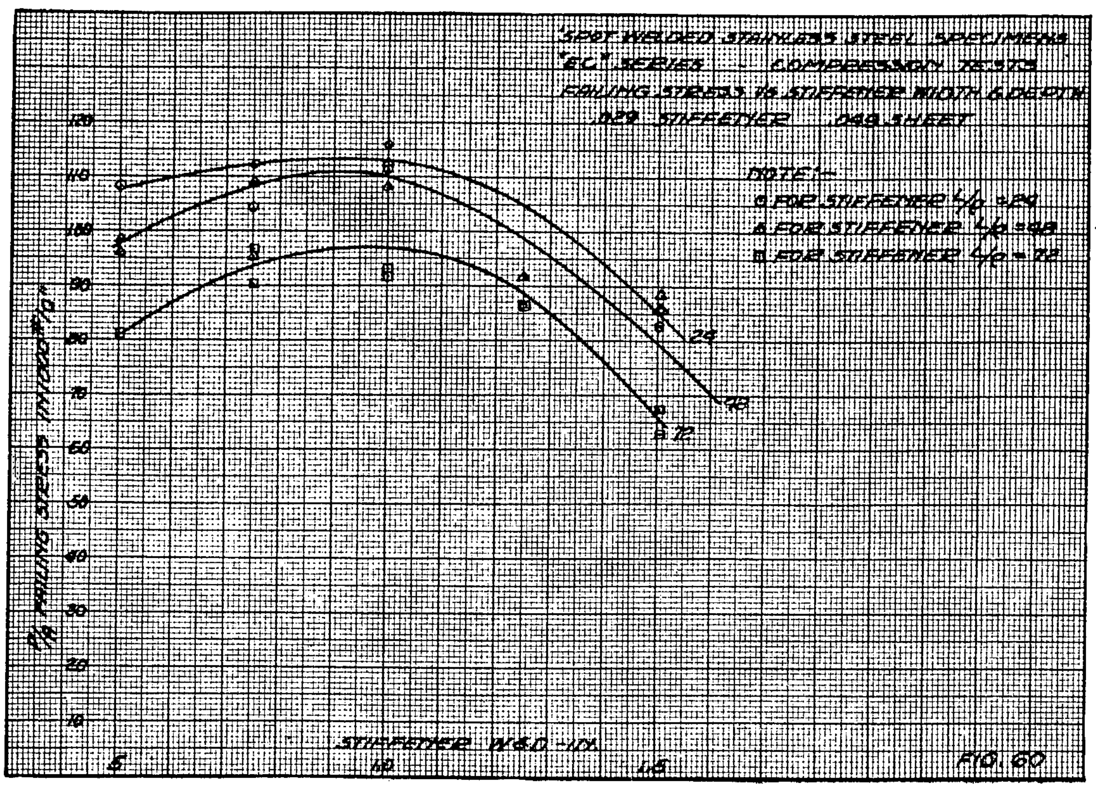

SPOT WELDED STAINLESS STEEL SPECIMENS
"EC" SERIES COMPRESSION TESTS
FAILING STRESS VS. STIFFENER WIDTH & DEPTH
.029 STIFFENER .048 SHEET
NOTE:-
○ FOR STIFFENER L/D = 24
△ FOR STIFFENER L/D = 48
□ FOR STIFFENER L/D = 72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER W & D - IN.
24
48
72

FIG. 60

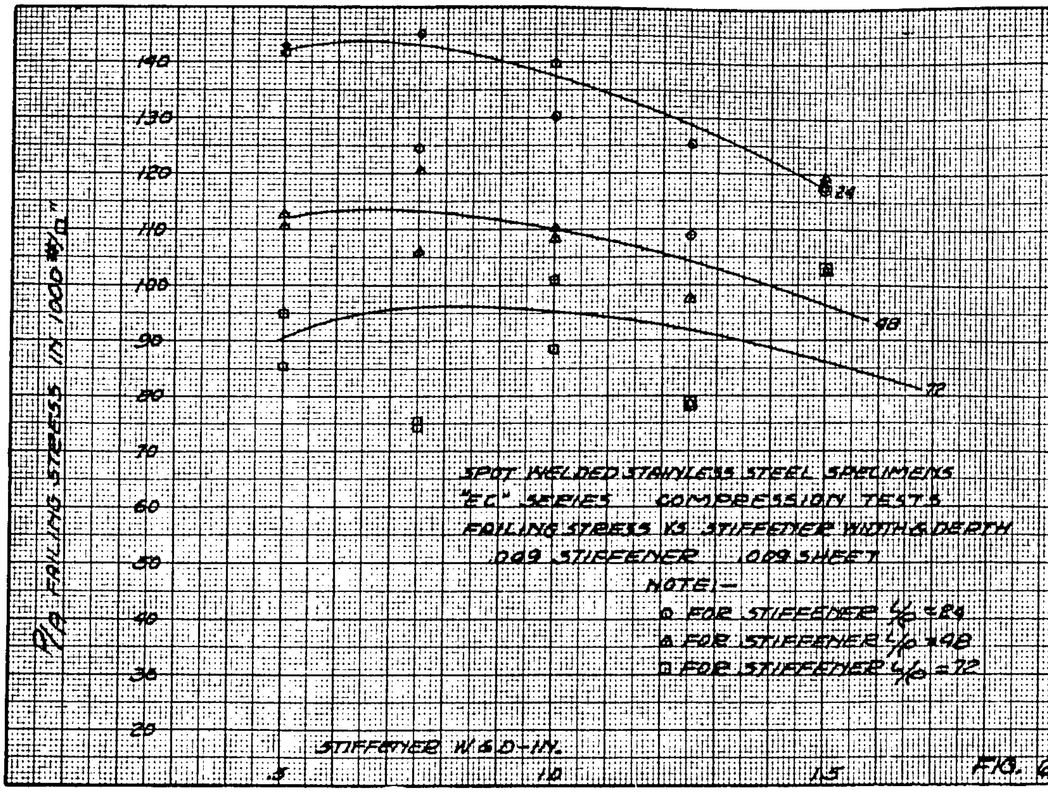

P/A FAILING STRESS IN 1000 #/□"
140
130
120
110
100
90
80
70
60
50
40
30
20
24
48
72
SPOT WELDED STAINLESS STEEL SPECIMENS
"EC" SERIES COMPRESSION TESTS
FAILING STRESS VS. STIFFENER WIDTH & DEPTH
.049 STIFFENER .009 SHEET
NOTE:-
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
STIFFENER W & D - IN.
.5
1.0
1.5

FIG. 61

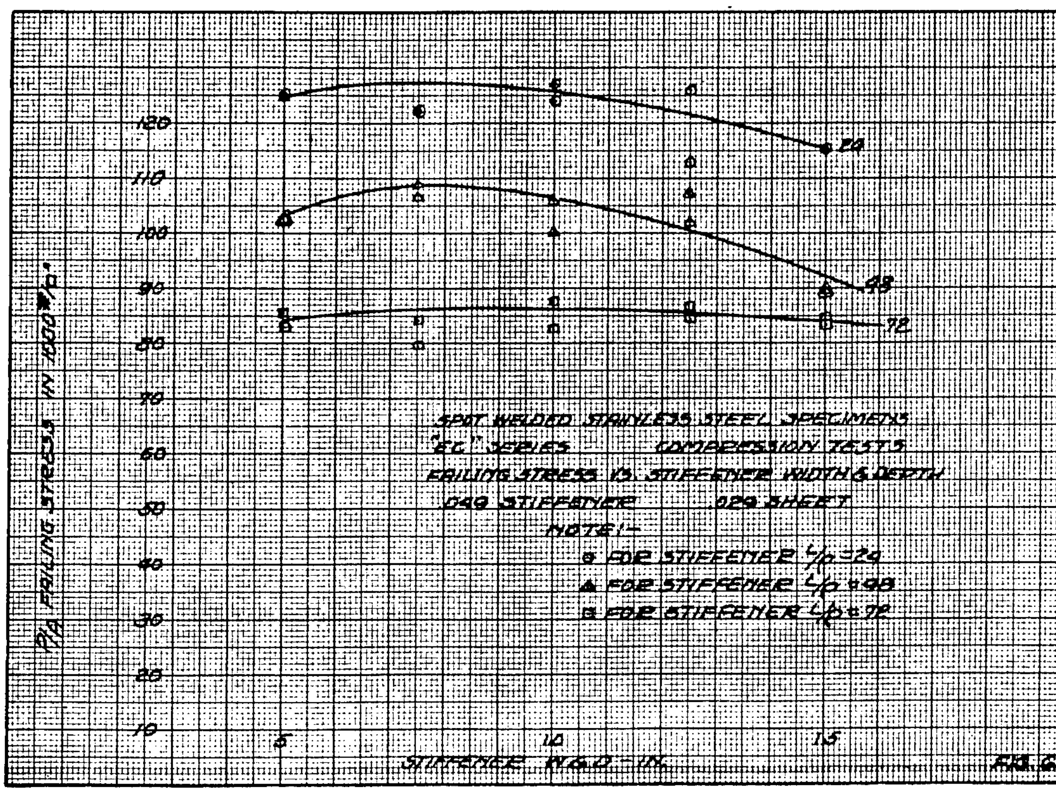
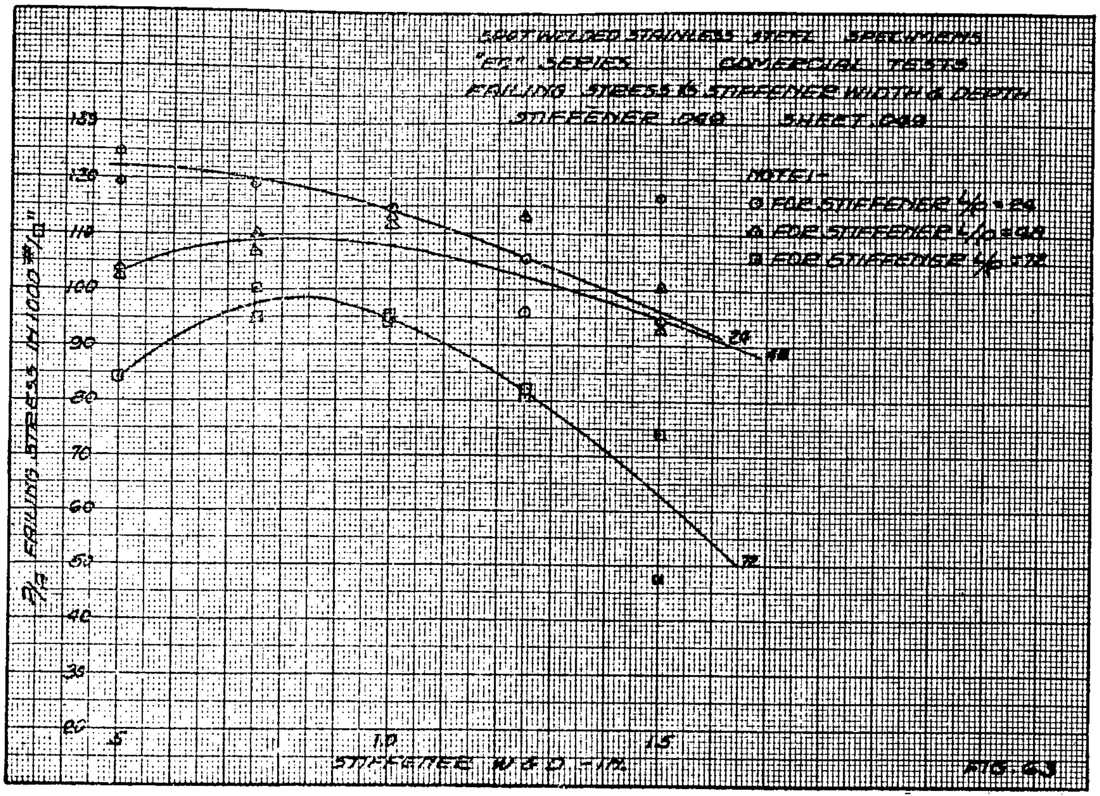
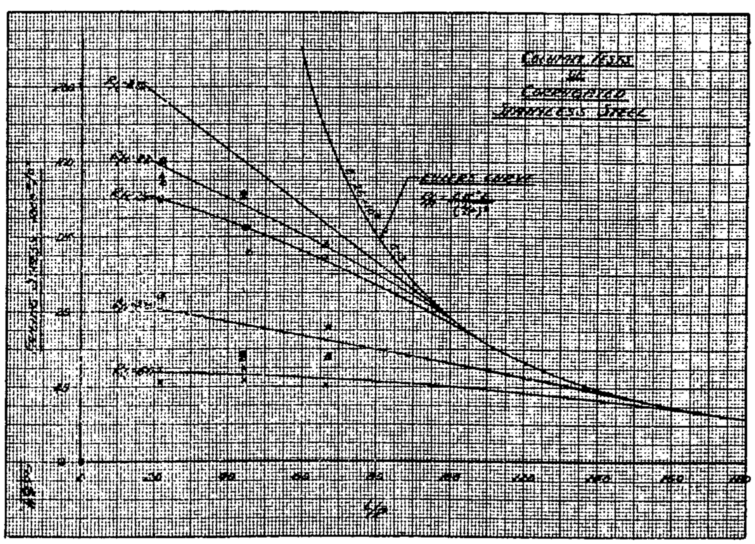
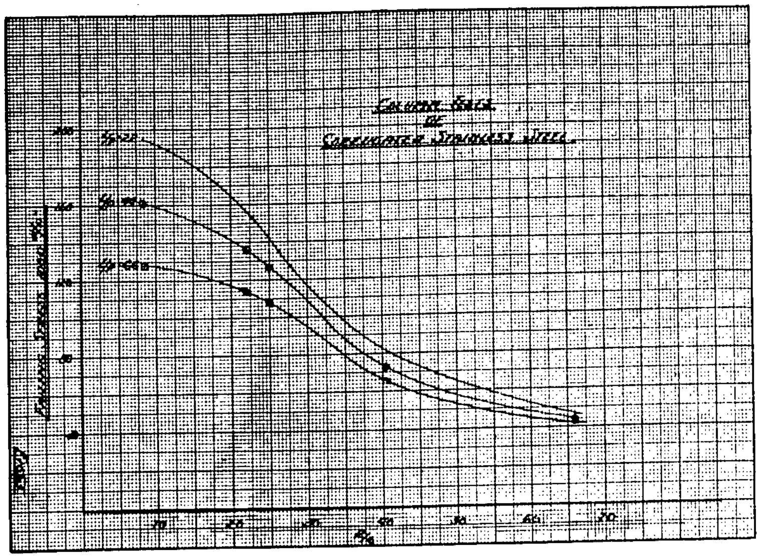
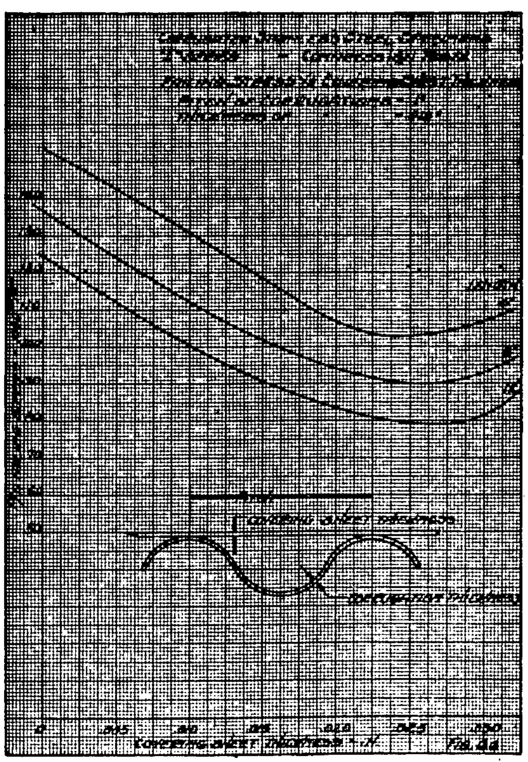

P/A FAILING STRESS IN 1000 #/□"
120
110
100
90
80
70
60
50
40
30
20
10
24
48
72
SPOT WELDED STAINLESS STEEL SPECIMENS
"EC" SERIES COMPRESSION TESTS
FAILING STRESS VS. STIFFENER WIDTH & DEPTH
.049 STIFFENER .029 SHEET
NOTE:-
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
.5
1.0
1.5
STIFFENER W & D - IN.

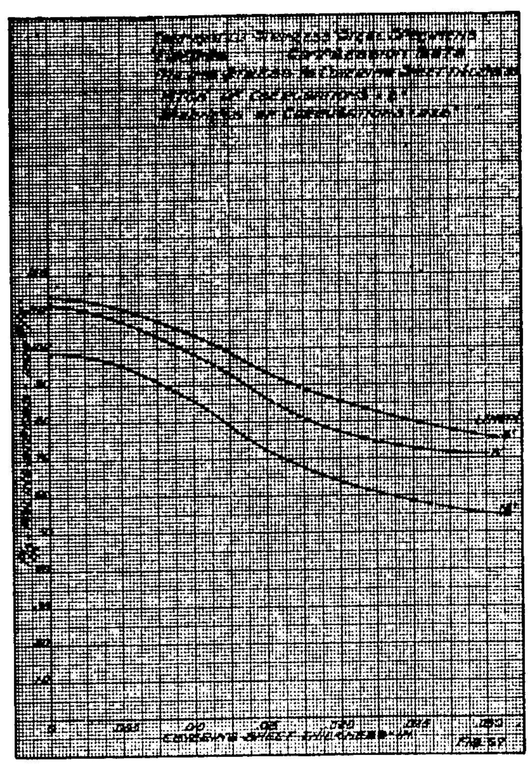
FIG. 62

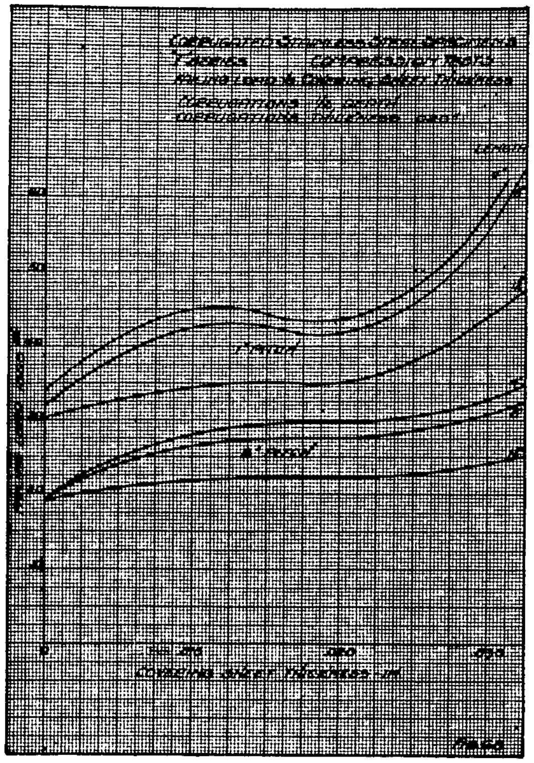

SPOT WELDED STAINLESS STEEL SPECIMENS
"EC" SERIES COMMERCIAL TESTS
FAILING STRESS VS STIFFENER WIDTH & DEPTH
STIFFENER .049 SHEET .049
NOTE:-
○ FOR STIFFENER L/ρ = 24
△ FOR STIFFENER L/ρ = 48
□ FOR STIFFENER L/ρ = 72
P/A FAILING STRESS IN 1000 #/□"
STIFFENER W & D - IN.
FIG. 63

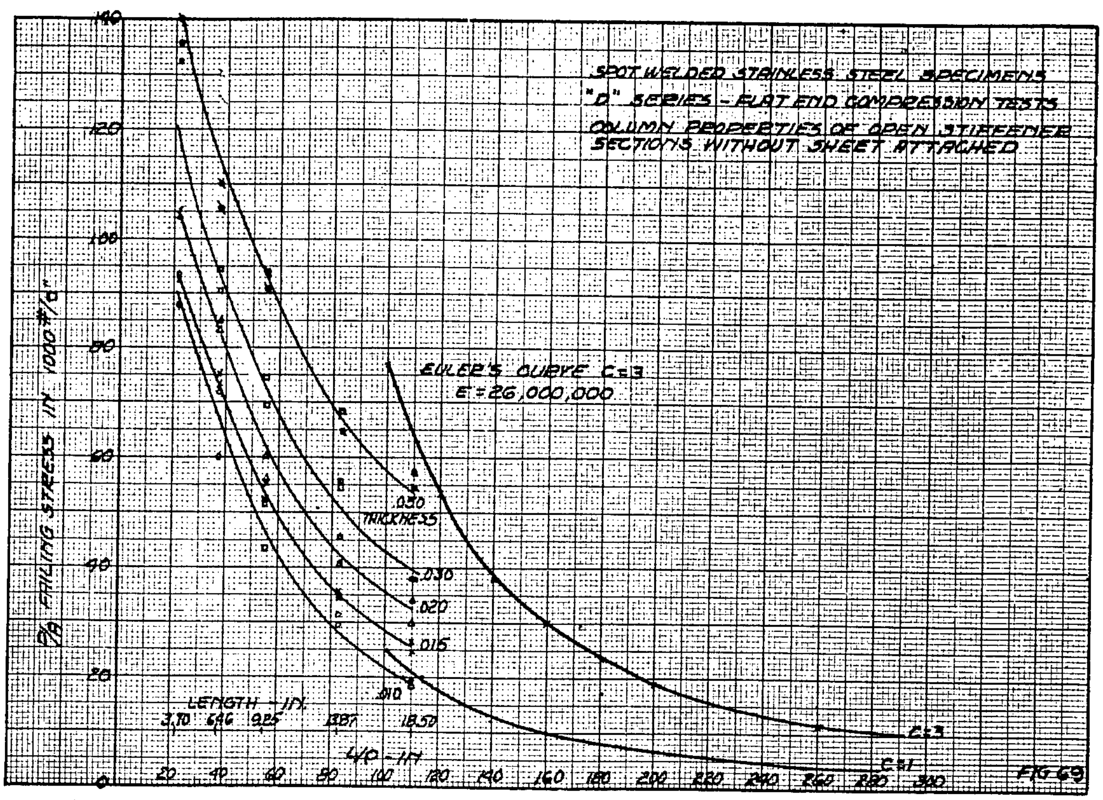

COLUMN TESTS
ON
CORRUGATED
STAINLESS STEEL
EULER'S CURVE
L/ρ

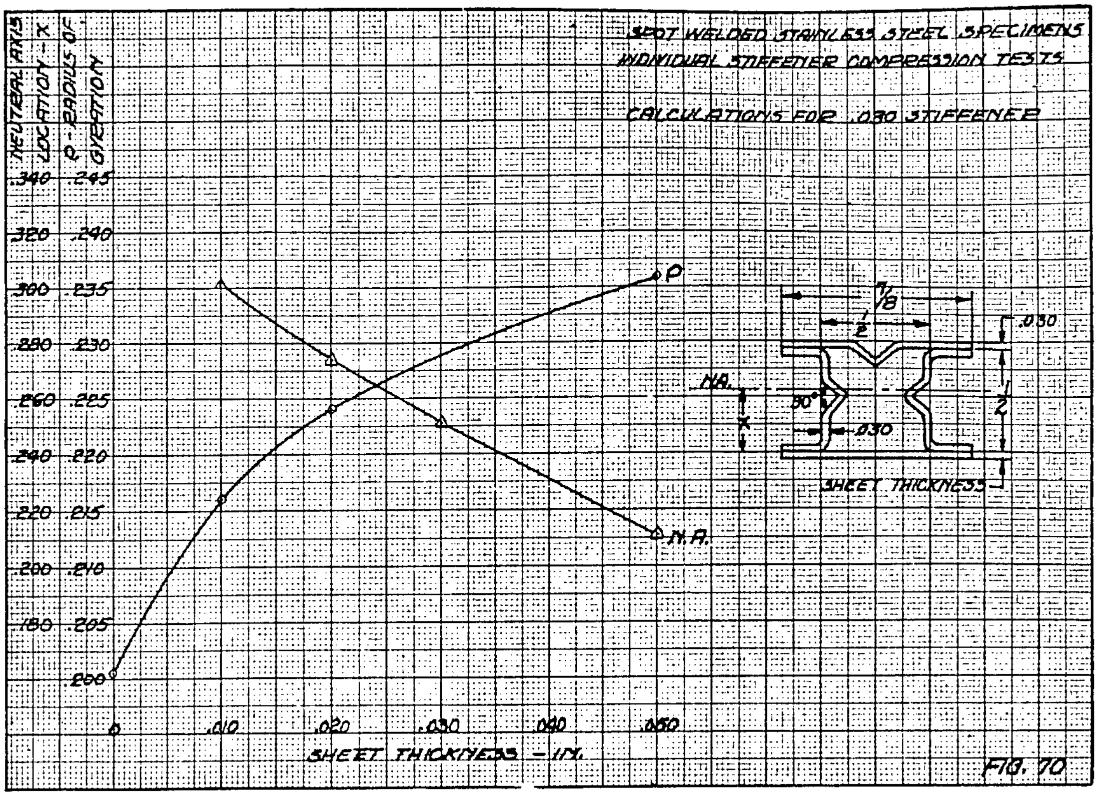


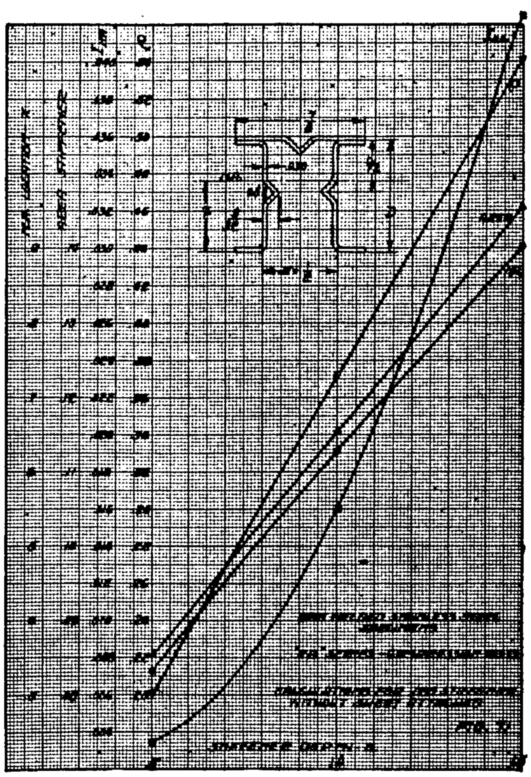


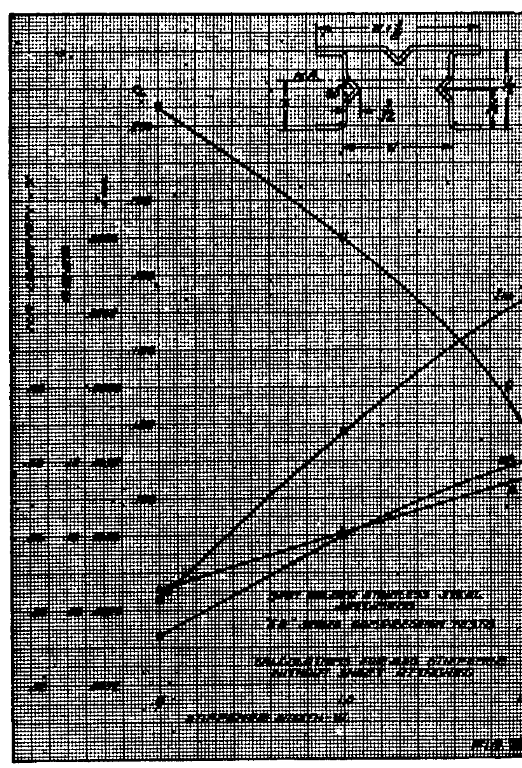


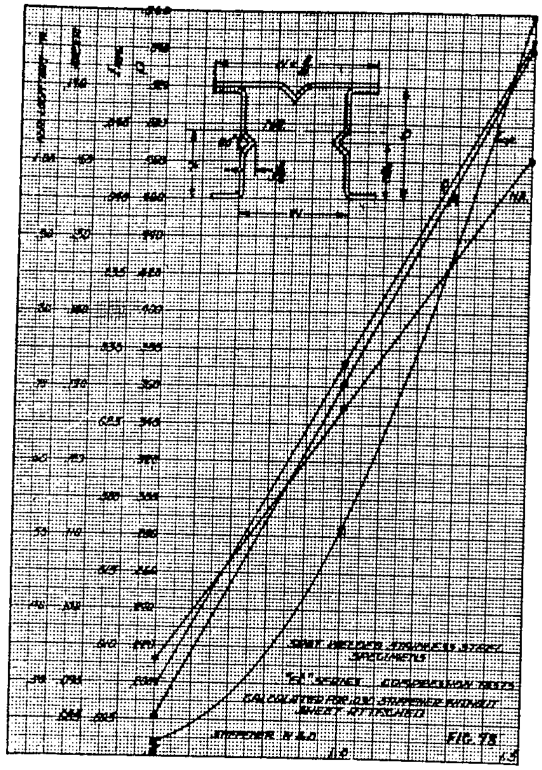



SPOT WELDED STAINLESS STEEL SPECIMENS
"D" SERIES - FLAT END COMPRESSION TESTS
COLUMN PROPERTIES OF OPEN STIFFENER
SECTIONS WITHOUT SHEET ATTACHED
EULER'S CURVE C=3
E=26,000,000
.030
THICKNESS
.030
.020
.015
.010
LENGTH - IN.
3.70 6.46 9.25 13.87 18.50
L/ρ - IN
FAILING STRESS IN 1000 #/□"
C=3
C=1
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
20 40 60 80 100 120 140
FIG 69


SPOT WELDED STAINLESS STEEL SPECIMENS
INDIVIDUAL STIFFENER COMPRESSION TESTS
CALCULATIONS FOR .030 STIFFENER
NEUTRAL AXIS LOCATION - X
ρ - RADIUS OF GYRATION
SHEET THICKNESS - IN.
SHEET THICKNESS
N.A.
P
.030
7/8
1/2
30°
2
FIG. 70







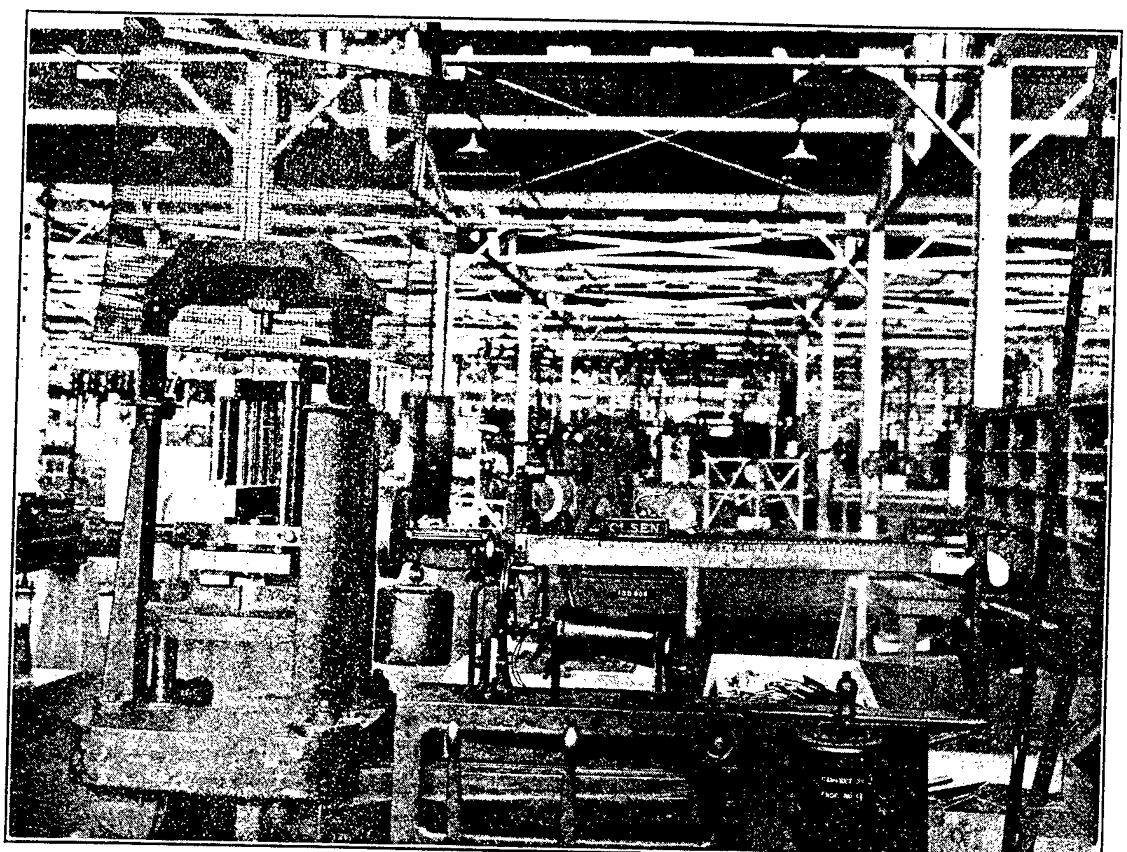


FIGURE 74.—Compression Test Set-up with Short Screws in Jig.

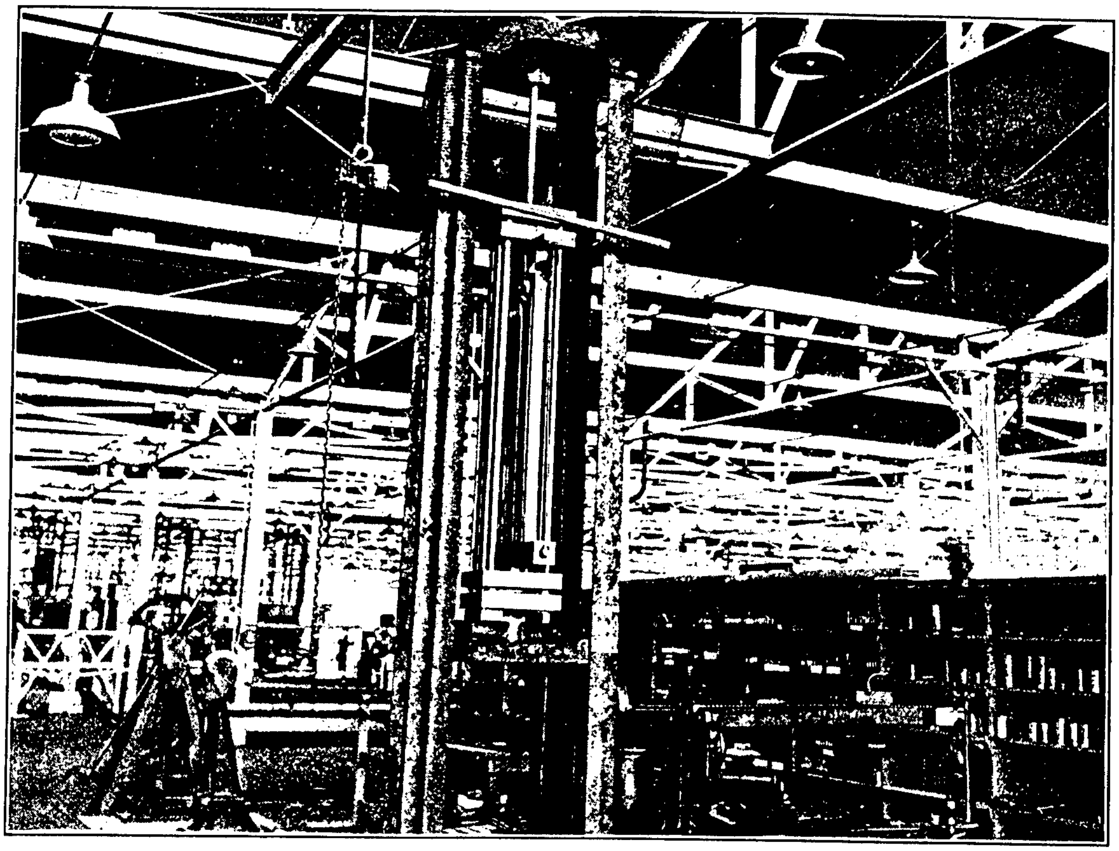


FIGURE 75.—Compression Test Set-up with Long Screws in Jig.

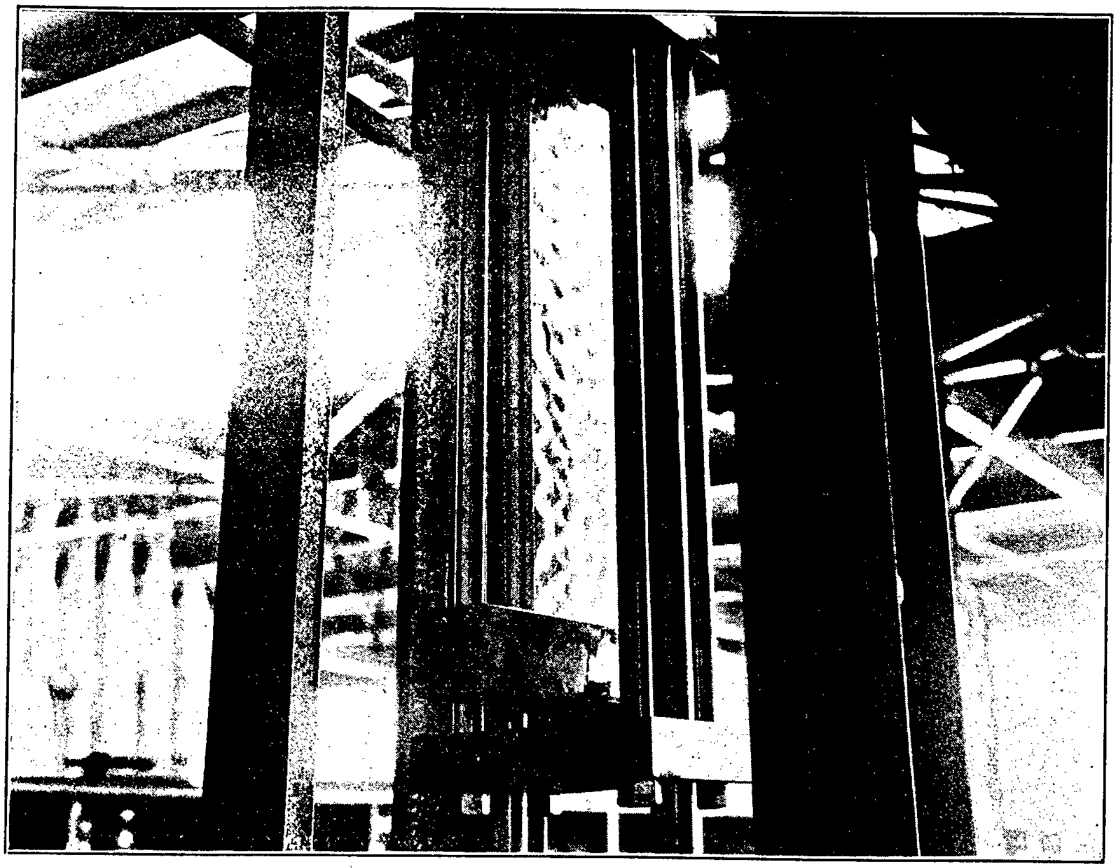


FIGURE 76.—Close-up View of Set-up of Specimen Using Long Screws in Jig.

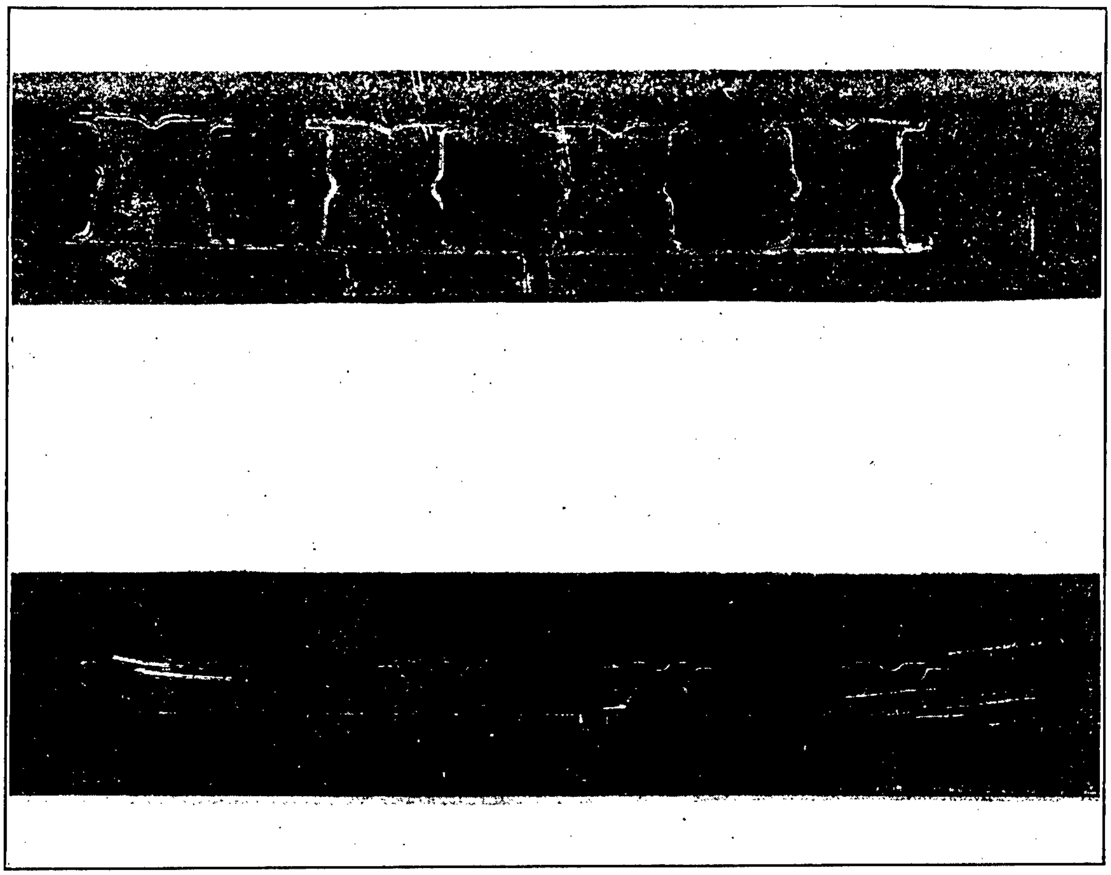


FIGURE 77.—Typical Impression of Specimens Left on Dural Seating Strips.

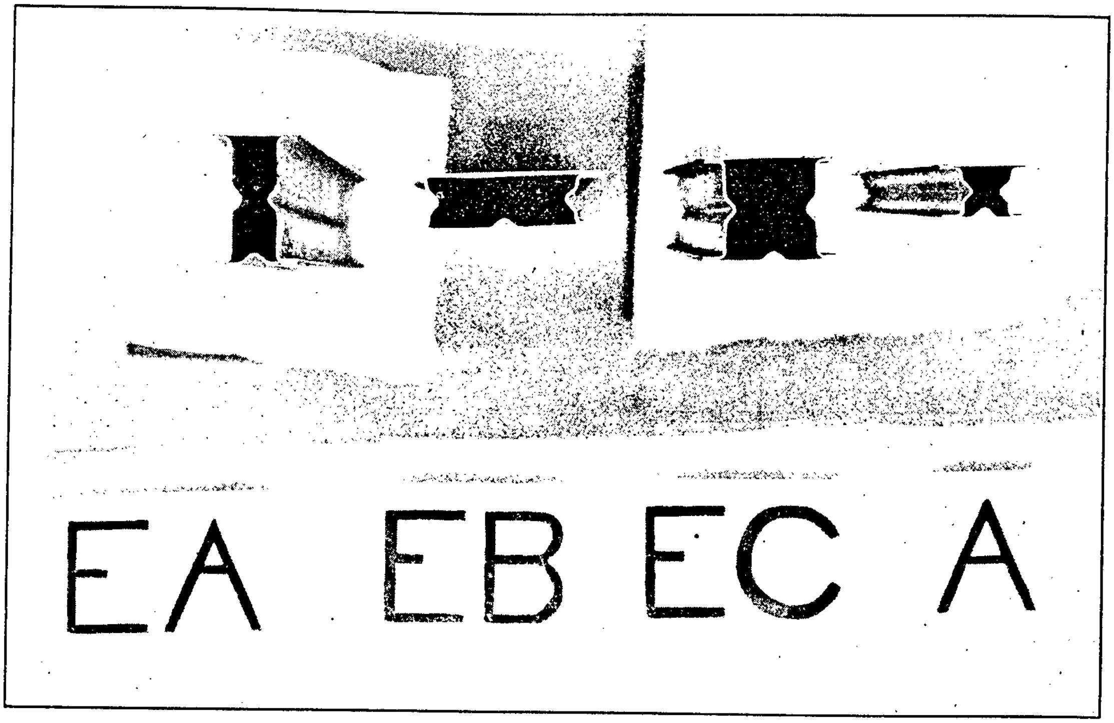


FIGURE 78.—Typical EA, EB, EC, and A Series Stiffener Sections.

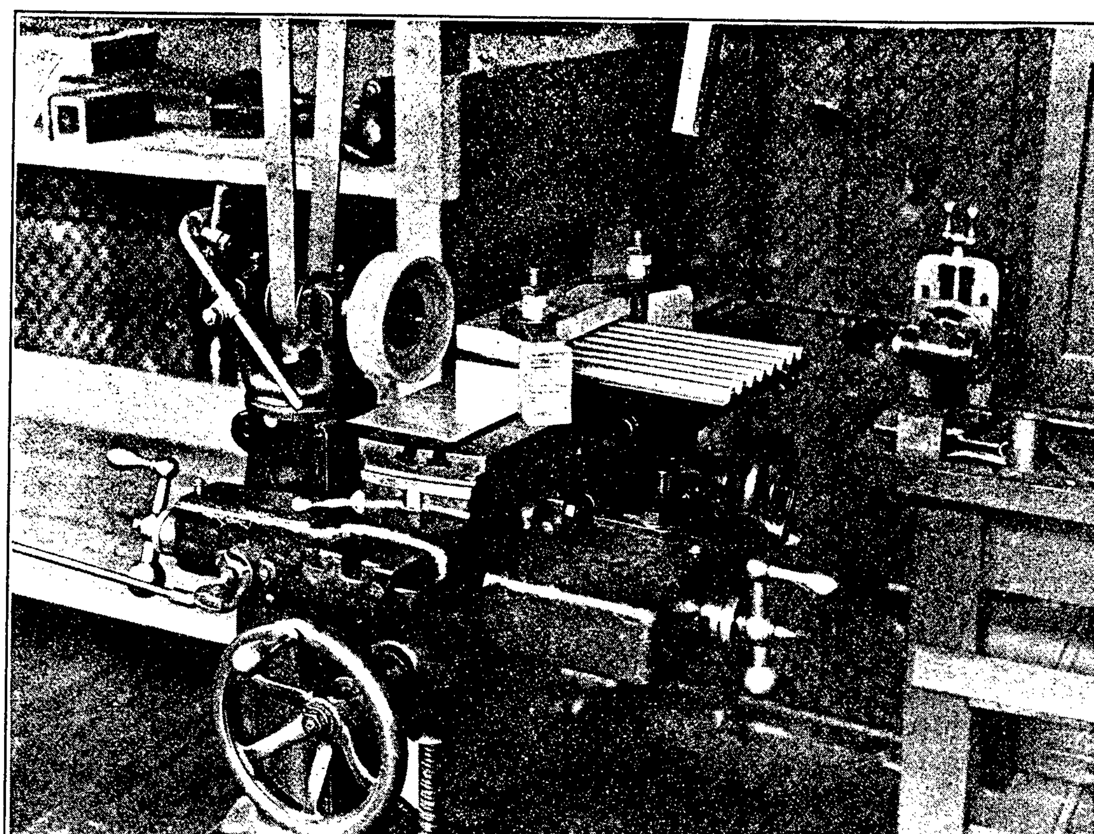


FIGURE 79.—Set-up Used for Regrinding the Ends on the I Series Specimens.

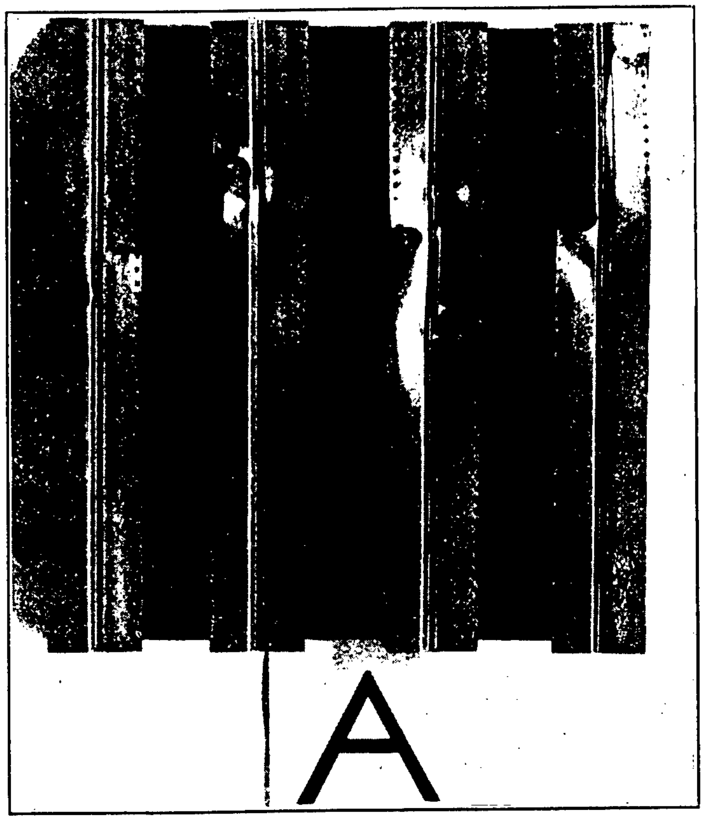


FIGURE 80.—Type A Failure.

FIGURE 81.—Type B Failure.

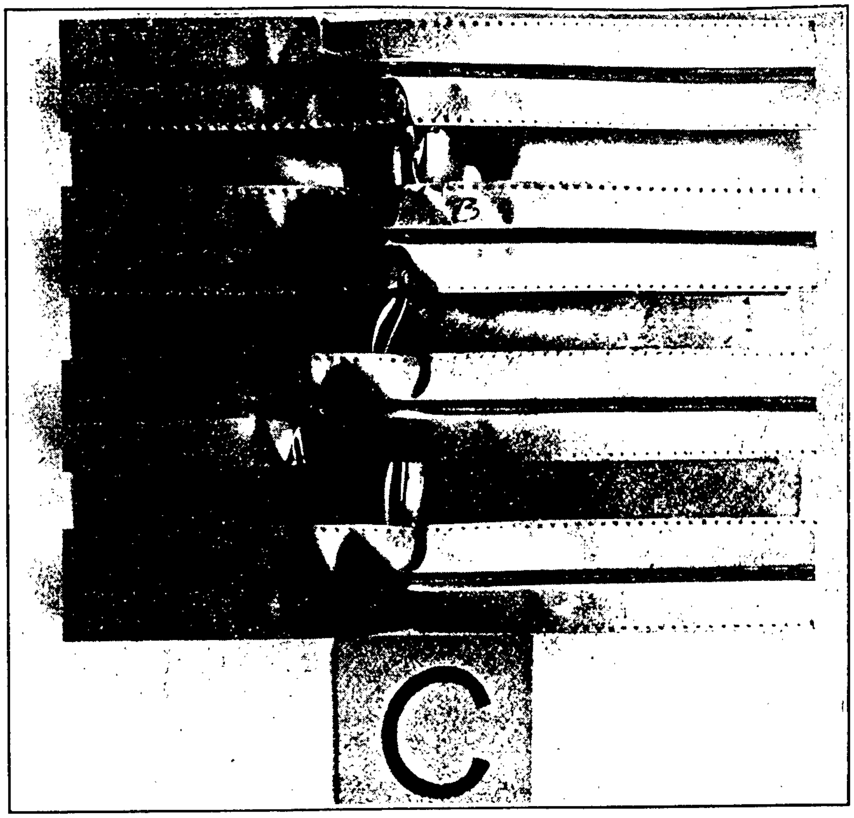


FIGURE 82.—Type C Failure.

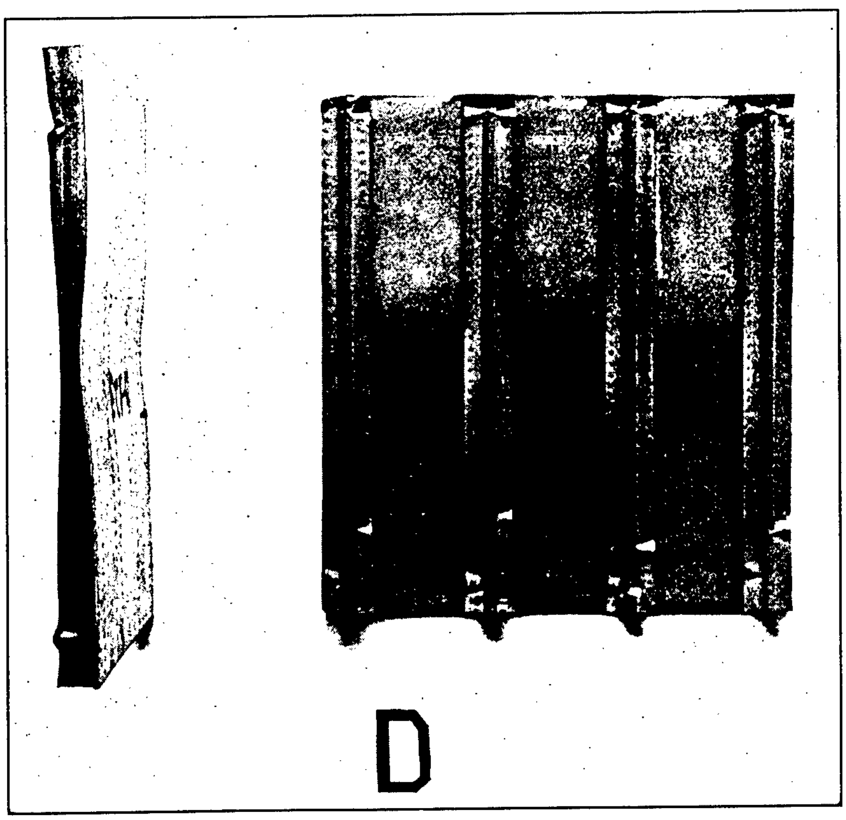


FIGURE 83.—Type D Failure.

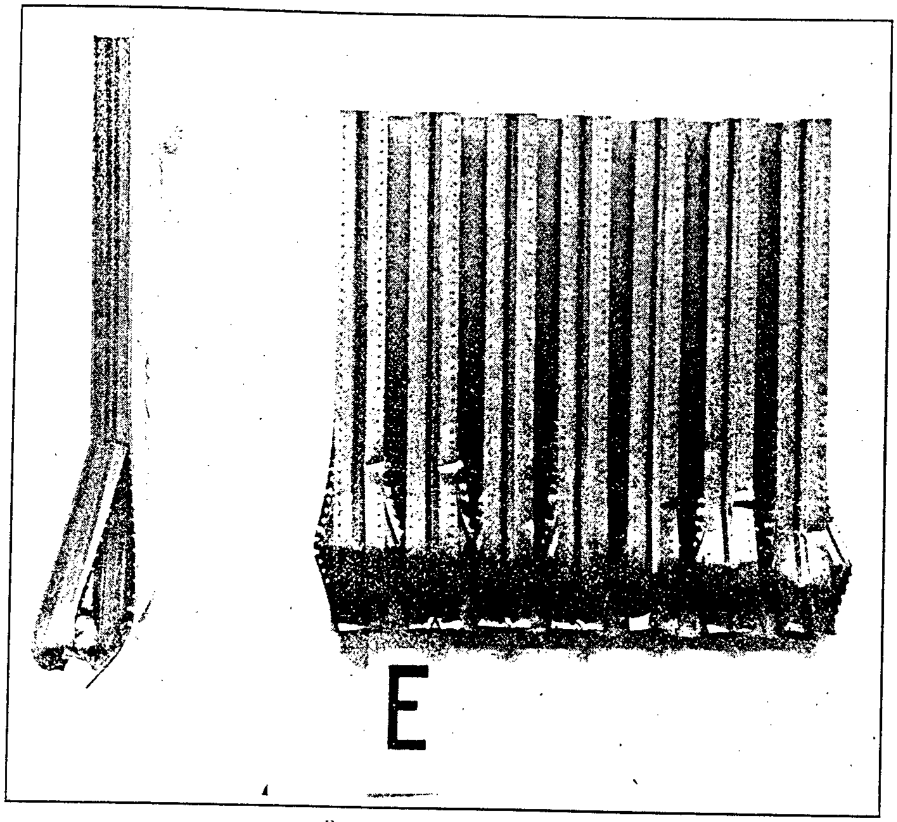


FIGURE 84.—Type E Failure.

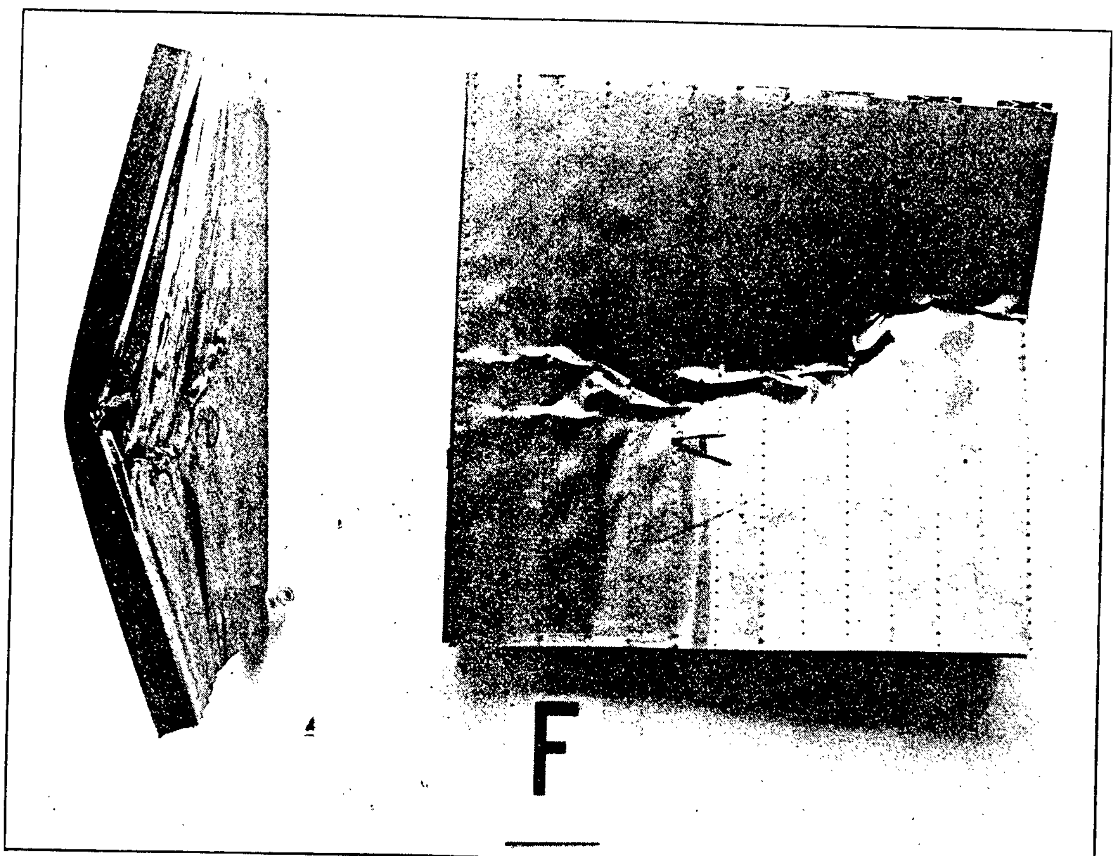


FIGURE 85.—Type F Failure.

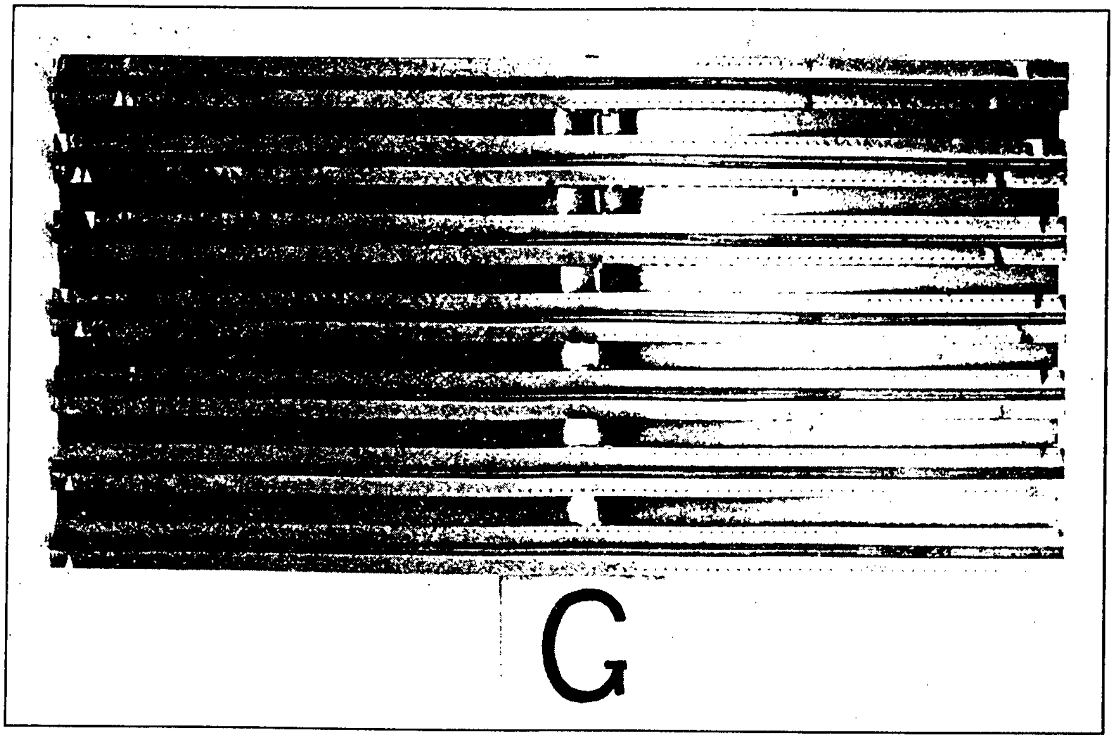


FIGURE 86.—Type G Failure.

FIGURE 87.—Type H Failure.

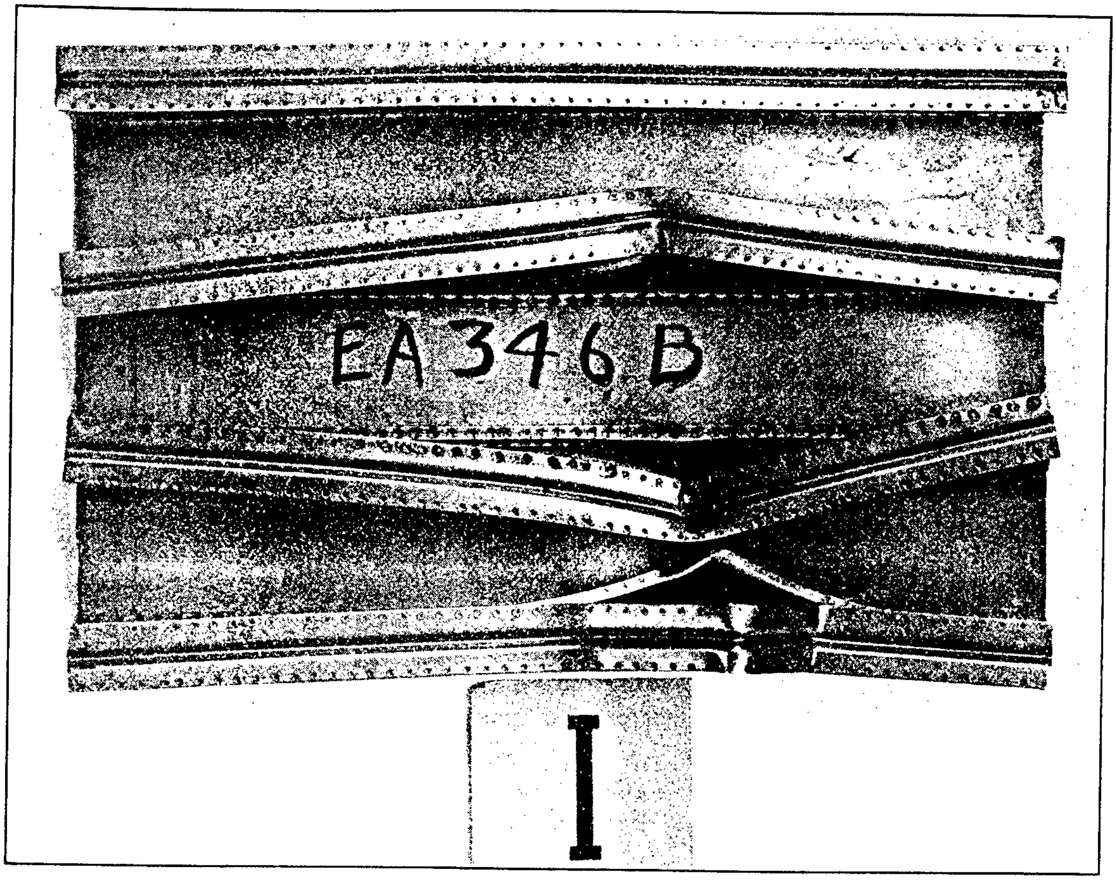


FIGURE 88.—Type I Failure.

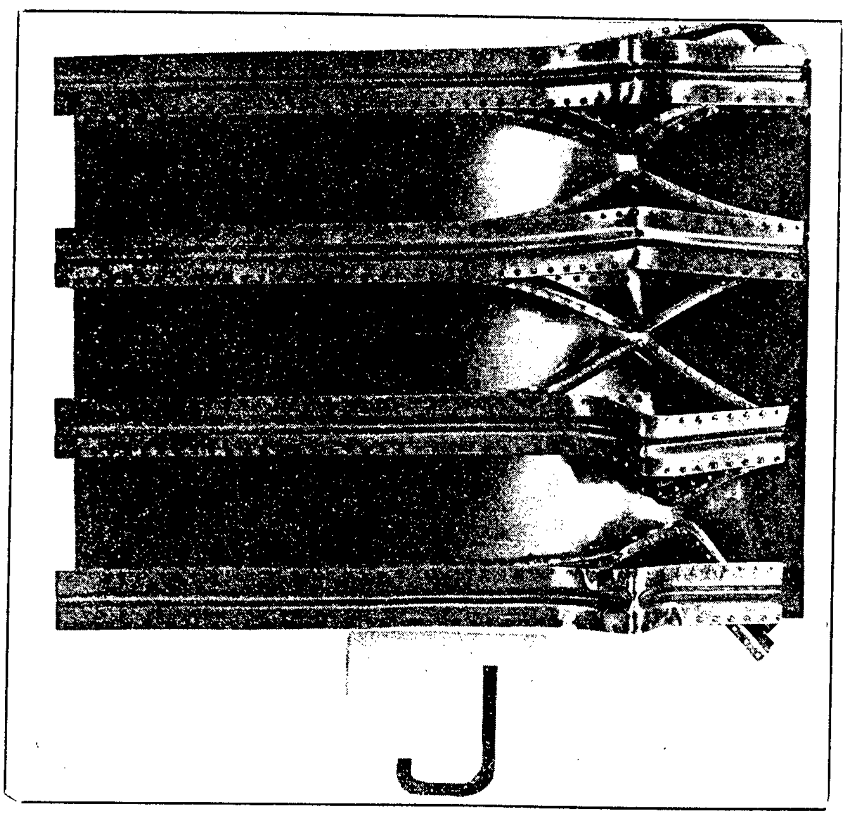


FIGURE 89.—Type J Failure.

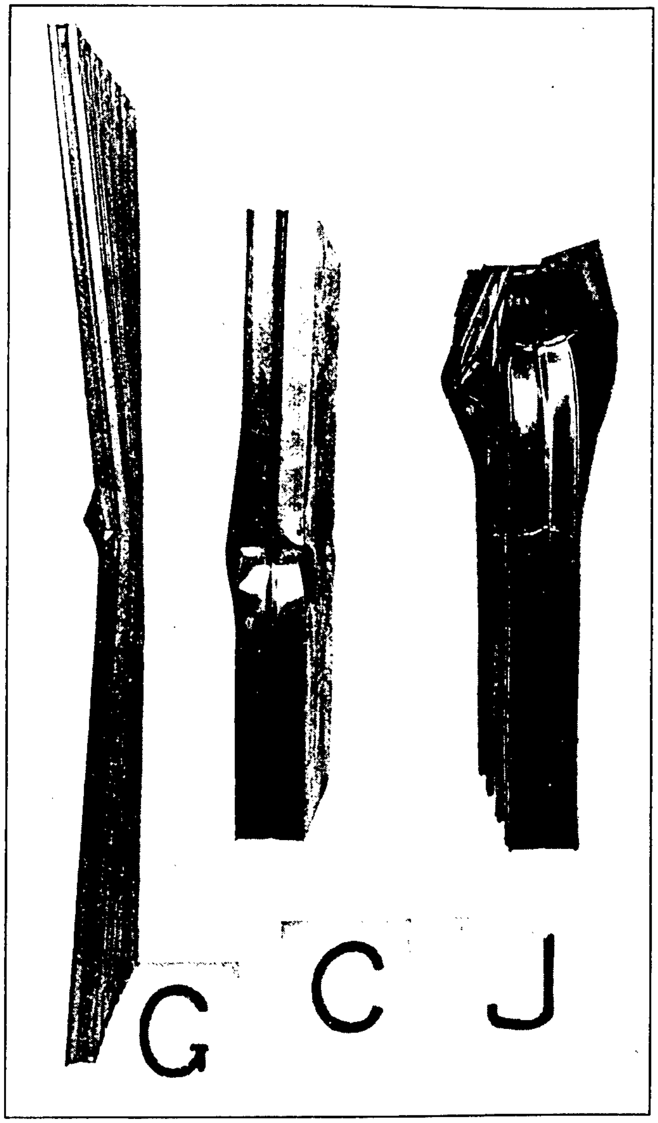


FIGURE 90.—Side View of Type C, G, and J Failures.

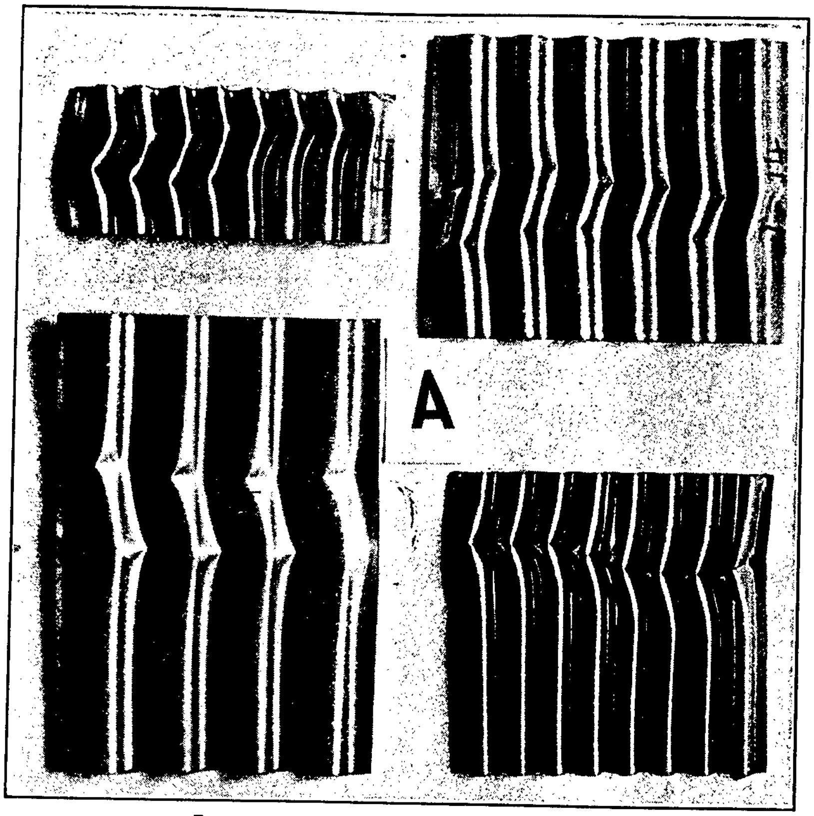


FIGURE 91.—Buckling Failure of Corrugated Sheet.

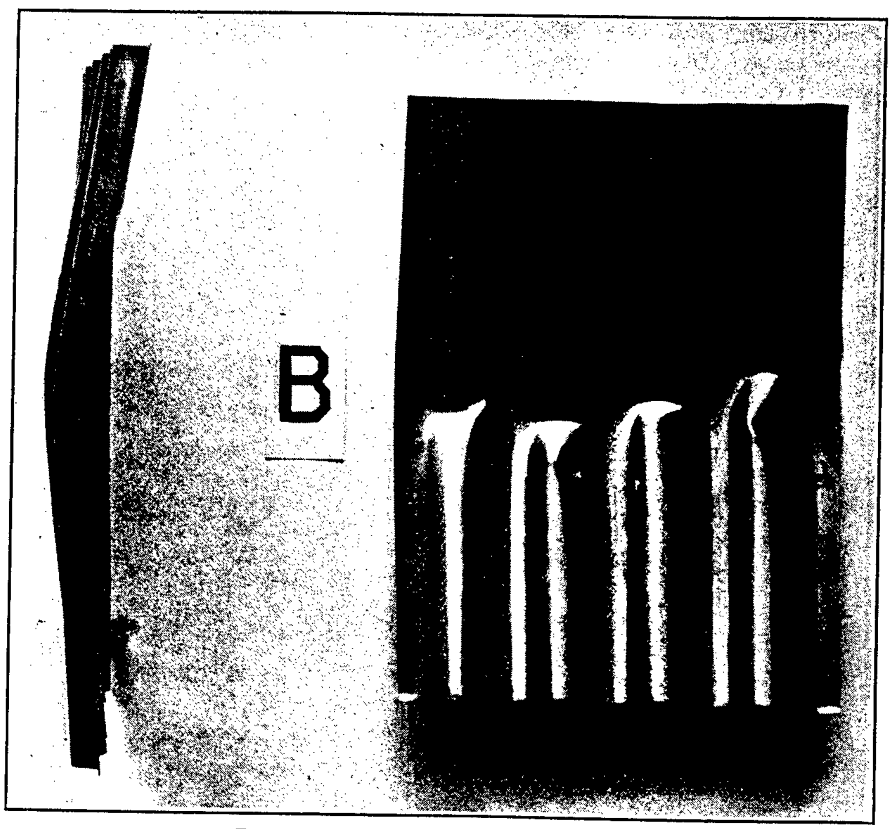


FIGURE 92.—Column Failure of Corrugated Sheet.

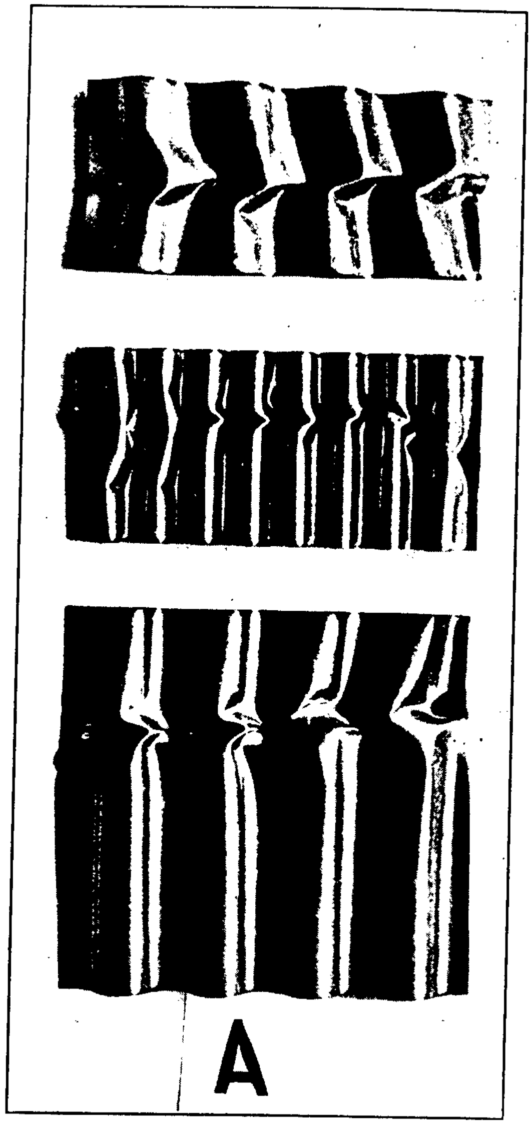


FIGURE 93.—Buckling of Corrugated Sheet with Flat Sheet Attached.

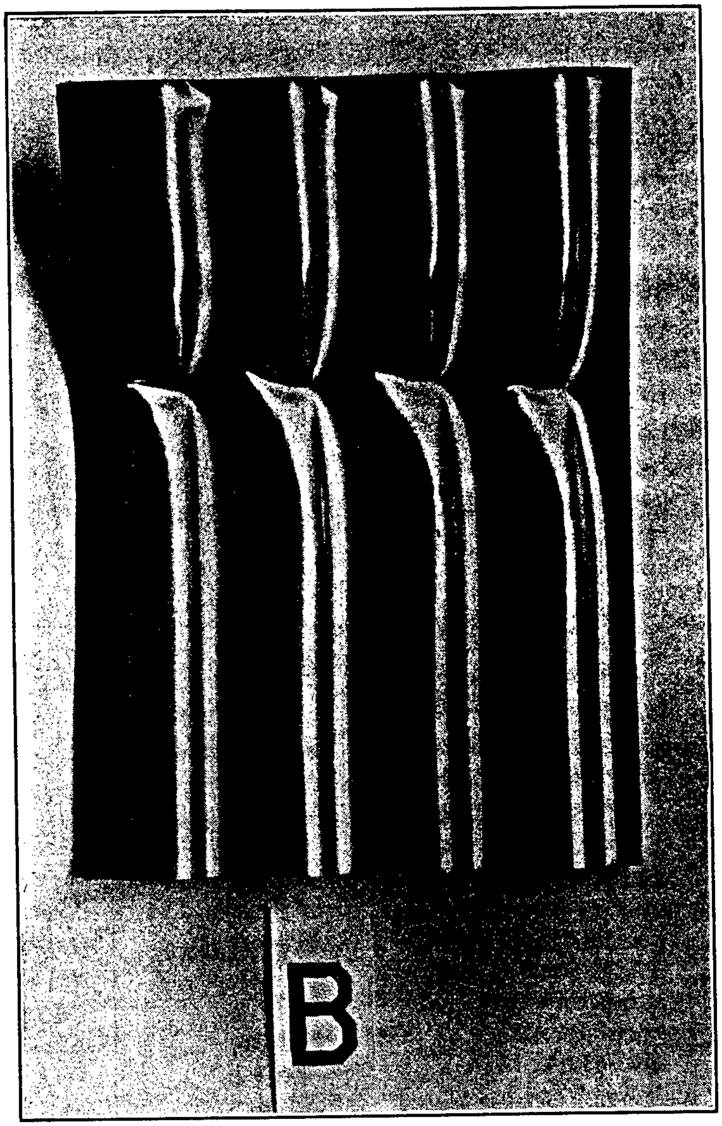


FIGURE 94.—Column Failure of Corrugated Sheet with Flat Sheet Attached.